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JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 24 1948

SOME ASPECTS OF THE TREATMENT OF SKIN DISEASES*

BY

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All dermatological affairs assume an importance greater than appears on the surface because they are a reflection of the same problems as concern medicine as a whole. They are a little complicated by external influences, but the fundamental principles which apply to medicine apply to the skin and are there made manifest. So it is with the problems of treatment, which more seriously test the ability of the physician as a healer of the sick than do most other departments of medical practice. It is an aspect of practice which each one of us should bring under review from time to time in a broad way, and this is perhaps more than ever necessary when therapeutic advances proceed as rapidly as has been the case in the past few decades.

There are certain fundamental principles which have guided the wise physician through the ages. They have a basis in careful clinical observation and are built upon sound experience. They have stood the test of time and satisfy the simple demands of common sense, and should form the basis of all our treatment. To these principles are attached in fashionable abundance a number of therapies, sometimes empirical, sometimes founded upon interesting and valuable scientific discovery, and sometimes mere fads, but there is ever present the danger that these accretions may obscure the sound principles in the hurly-burly of medical practice.

Some General Principles in Treatment

A first essential in treatment is to make an accurate diagnosis, to grasp the full significance of that diagnosis, and often to convey that significance to the patient. Diagnosis is not covered by a tabulated series of labels and the attachment of a particular label to a particular manifestation. Treatment does not consist merely in the administration of a certain drug filed under the heading of such a label. Diagnosis, and therefore treatment, rests almost entirely upon a careful history and a complete examination of the patient, including his whole skin. Special tests necessitating elaborate technical facilities are of very secondary importance and need not concern us here. In a considerable proportion of cases effective treatment demands no more than this taking of a history and clinical examination except that it shall be shared and understood by the patient.

The "Organic" Group of Skin Diseases

We find in dermatology that diseases fall broadly into two distinct groups. The first may be described by the old-fashioned term "organic." These are structural changes with little disturbance of function and include congenital abnormalities, infective diseases, and neoplasms. This constitutes the smaller group of dermatological ills seen by the doctor, and for each disease in this group there is a more or less specific line of treatment, to be modified according to the characters and circumstances of the patient.. In this field the physician may claim that it is he who treats the patient and that success depends almost entirely upon his knowledge and ability.

One or two examples may make my point clear. The diagnosis of erythema nodosum is not difficult. It is a reaction in a sensitized individual to organisms which have recently gained access to the blood stream from some focus of infection. Those are two very significant points. It is recognized that in this country more than 70% of those who suffer from erythema nodosum under the age of puberty do so by reason of a tuberculous infection. That, then, is one major aspect of the problem, and if treatment goes no further than a careful overhaul for active tuberculous disease in the patient and in those around him it has been to some purpose. Warty tuberculosis of the skin results from external contact with the tubercle bacillus. But again, though it may do no more than point to the occupation of the patient, it may on the other hand mean that the patient himself or someone in his family or in a wider circle of contact is the subject of open pulmonary tuberculosis and is the source of the organism. If the lesion is on the buttock it is almost certain that the patient is himself infected in lung or bowel or ischio-rectal region.

Erysipeloid is a common infection of the hand in those who handle pork, fish, game, rabbits, etc., and is due to *B. rhusiopathiae suis*. It does not cause abscess formation, lymphangitis, or adenitis, and is responsive to penicillin therapy. To make an error of diagnosis and diagnose pyodermia or cellulitis and to incise may lead to sepsis and unfortunate sequelae.

So simple an affection as impetigo is not just a matter of a label and specific treatment. Its presence about the head and face often indicates an underlying pediculosis capitis or a focal infection such as a fissure or aural, nasal, or dental sepsis. Furthermore, those in greasy or wet trades and those with greasy and wet skins are known to be particularly prone to sepsis, and treatment should be guided by these facts. Whatever the medication, a first indication is to keep the parts dry and avoid greasy applications.

These illustrations in the field of organic disease demonstrate the importance of an accurate diagnosis and all that it means in effective treatment.

The Functional Group

In the second group of dermatological ills, comprising perhaps 70% of all skin diseases, the stress is upon function, and structural changes play a minor part. In the first group we can almost imagine the disease pursuing its course independently of the patient. In the second group the disease is the patient, is essentially individual, and merely expresses the functional response of that individual to the particular circumstances in which he finds himself.

*Based on a lecture delivered at Staincliffe County Hospital, Dewsbury, on March 18, 1948.

We attach a number of labels to certain patterns of functional reaction which bear certain features, labels like eczema and urticaria, seborrhoeic dermatitis and psoriasis, but it is a grave error to imagine that the label is the disease and carries with it the implication of a definite course of treatment. To make a diagnosis here it is necessary to know something of the patient's background and inheritance, something of his health and temperament, his circumstances, his home and work, and to consider all those environmental influences which may bear upon and affect his reactions. To carry that diagnosis through to effective treatment it is necessary to convey to the patient an understanding of all these factors so as to enable him, with appropriate assistance, to achieve an adjustment and stability in relation to his environment. It is indeed the patient who treats himself.

Infantile eczema is an illustration of this type of disorder. The child has a sensitive skin provoked to functional disturbance—itching—by external factors such as exposure, or by internal disturbances such as teething, which would not annoy the normal child. Protective and antipruritic applications such as tar paste are employed, and sedative measures are prescribed internally. But the problem is not quite so simple. There is not only a sensitive skin or even a sensitive ectoderm, but a sensitive patient manifest in all his emotional and nervous reactions. This calls not only for great care and understanding in management immediately, but for consideration in relation to the training and rearing of the child and choice of school and career.

Such a child will generally be the offspring of a parent or parents of similar temperament, a likely aggravation for the patient and often responsible for an atmosphere of unrest and anxiety round the child. It may be necessary to remove the child, at least for a period, from the atmosphere during his early life. In any case success in treatment must be difficult if the parent cannot be brought to understand the nature of the disturbance.

Rosacea is another label that is entirely inadequate unless the significance of the reaction is appreciated by doctor and patient. A variant of blushing, it is clearly subject to emotional and endocrine imbalance such as occurs at puberty or the menopause. Not only the psychological but all those influences external and internal which can bear upon blushing and flushing must be brought under review, and the possibility of hypertension as another expression of vasomotor instability must not be overlooked, for, if present, it will be the major symptom. Fortunately this very embarrassing symptom, rosacea, is readily responsive to simple measures—small fractional doses of *x* rays with a mild sulphur and salicylic ointment locally and phenobarbitone internally. But success will be short-lived if the wider psychological and environmental aspects of each case are not dealt with and the patient given insight into them.

So it is with all affections in this large group of ills. The label of industrial dermatitis or psoriasis, of sycosis barbae, pruritus ani, or eczema, is not sufficient to indicate treatment. The same treatment may upon occasion be applicable to all, for the cause of the disturbance may turn upon a question of domestic harmony, malnutrition, or endocrine dysfunction, or other endogenous influences of greater importance than the apparent external factor. All aspects of the problem must receive careful assessment in each case, for it is this integrity in diagnosis that is essential to treatment. This was, often unconsciously, appreciated by the wise physician of old, the good family practitioner. It is something which in the face of rapid scientific progress we are apt to lose, and it is something which cannot easily be reconciled with an ordered, scientific, and regimented medical service. At the same time its recognition in a big way rather than on the individual plane constitutes one of the major advances in treatment through the development of psychological and social medicine.

An Important Point

A second point of major importance in treatment is to remember that the disease affects a human being and not a laboratory apparatus; that the disease has a natural history and tends to run a natural course of its own; further, that its presence automatically sets in action a variety of defence mechanisms about some of which we may understand a little but about many of which we certainly know nothing. It is undoubtedly these defence mechanisms which ultimately effect a cure, and we must be careful not to interfere with or harm their activities and must cut across them only with caution. In short, even with the most modern and scientific weapons it is still the patient and not the disease that must be treated.

In this regard it is pertinent to mention the value of rest, to stress the harm caused by interference, and to encourage a masterly inactivity. There is every inducement to practise the reverse. The patient urges us to do something, and to do something different. We are encouraged by a spate of medical literature not always based on a broad clinical experience. Such a wealth of medical preparations is placed at our disposal and so many are the diseases of uncertain aetiology that there is ever present the temptation to try one of the new drugs which seem to exercise magical powers. Sometimes the magic works, sometimes it does obvious harm, but how often it does unseen harm it is not possible to tell.

If dermatology reflects what happens in other spheres of medical practice—and I do not doubt that it does—this ability of the physician to create harmful disease should be stressed. The dermatologist constantly sees, and himself often produces, extensive dermatoses or disabling illnesses that have their origin in little or nothing and are literally created by an excess of treatment and misdirected zeal. We are ourselves in large part responsible for this—encouraging patient and worker to attack with treatment the most trivial of lesions, forgetful of or having lost faith in the healing powers of nature and particularly of the skin, and unmindful of the fact that this is the age of therapeutic danger. Antiseptics, sulphonamides, penicillin, and adhesive plasters readily convert a harmless abrasion into an area of eczematous dermatitis, and immediately a serious offence is created.

These problems are all too familiar. I may quote three cases. The first is that of an old lady of 84 who had never suffered from her skin in her life. Six months previously she was burnt by a poultice applied to relieve pain in her chest. This burn was treated with penicillin and sulphonamides locally. The resulting sulphonamide dermatitis was treated with tar, to which she was sensitive, and now after six months she is distracted with a widespread eczema and intolerable itching.

The second case is that of a man of 48 who scratched his leg two months ago. This was treated with sulphonamides and penicillin in the ambulance room at his works, and now he must be admitted to hospital for at least six weeks to treat the dermatitis and oedema of the leg and the generalized spread resulting from treatment.

If nothing had been done in these cases it is probable that the patients would have recovered rapidly.

The third case, that of a middle-aged woman with a widespread dermatitis from the use of a liniment to relieve pain in a joint, is less unreasonable perhaps, but we should always be alive to the harm that may result from interference.

The skin is slow to forgive, eczema begets eczema, and what is produced in a few days may take months or years to subdue. The inherent sensitiveness of the skin, the powerful sensitizing properties of the metabolites which such reactions evoke, the effects upon the blood chemistry and upon the mind, to mention only a few of the major influences which are set in motion, are profound, and we understand very little about them.

In dermatology, and no doubt in other spheres, it is of importance to be able to recognize the ill-effects of treatment as opposed to the evidences of the disease itself. I try to remember in practice to suspend all treatment in a case that is getting worse under seemingly rational treatment and especially in a case that is getting out of hand. It is always instructive to watch the effects of no treatment at all, and one's measure of success should always be gauged against that yardstick. It may be wise for the inactivity to take the form of some bland medicament, and there are still many to be obtained, even though this is not as easy as in the days before the war, for "austerity" substitutes are apt to masquerade under the guise of old labels, especially in relation to oils and fats.

Very many of the dermatological ills of which I have been speaking are themselves the expression of a patient's loss of confidence in himself. Whether or not that is the case, it is very easy for the subject of a functional disorder of the skin, as eczema or psoriasis, to become anxious and feel insecure and doubtful of the future, more particularly if his disease seems to be a mystery to himself and his doctor.

Treat with confidence. It is probably true to-day, as it has ever been in the past, that the more able and experienced the physician the fewer and the simpler his therapies. With a full and careful diagnosis—and this rarely demands much technical assistance—and if the nature of the remedies prescribed is known, the physician should treat his patient with complete confidence and not be disturbed from that course without serious consideration.

Local Treatment

The question of the use of soap and water is always an intriguing one for the patient. Few skin affections are infectious or contagious, and so far as the attendant upon the patient is concerned, the nurse or doctor, ordinary soap-and-water toilet cleanliness is desirable and necessary, but nothing more. The lavish use of antiseptics is unwise, and the wearing of rubber gloves is an offence which may do much harm in the field of treatment, confirming the patient in his feeling of being an outcast.

So far as the patient is concerned the use of soap and water must be guided by common sense. In some affections it is essential to wash thoroughly, as in seborrhoeic disorders not associated with eczematous dermatitis. Seborrhoeic pityriasis and acne vulgaris respond to washing, and the addition of one of the modern soapless detergents to the washing water, by cleaning the skin more thoroughly of its excess of grease, will hasten the response. Expressions of skin sensitiveness like rosacea and eczematous dermatitis are aggravated by this procedure, and it is often wise entirely to avoid washing the affected parts. It is of importance that the patient shall understand his ill and shall not approach it as a leprous offence of which he must be cleansed by vigorous scrubbing. The patient will often comment upon the injustice of his having skin trouble when he is so much more careful about his toilet than his neighbour. It is just that type of patient who is most likely to show a skin disorder, by reason of his temperament, but it is essential that his false approach to the problem should be corrected.

The same yardstick of common sense should be applied to the use of protective barrier creams before starting work in the factory or the home and to the use of cleansing agents after work. The suitable employment of such measures can be most beneficial, but if employed without understanding and intelligence they may do great harm.

I want now to turn to some particular aspects of dermatological treatment. Local applications are rarely to be employed as therapeutic weapons: seldom is it desirable to attack. The purpose of local treatment is commonly to support and protect the skin to effect its own recovery, to improve the conditions under which it is functioning. For that reason the character and form of the application, its physical qualities, and the manner in which it is employed and applied are of more importance than the ingredients.

Local or general baths and lotions are valuable, especially for infected and eroded surfaces, but they should be applied for only a limited period for fear of soddening and macerating the tissues. They should not be irritant as regards either temperature or ingredients; they should be isotonic and not unduly astringent. Normal saline is excellent for most purposes. As a mild astringent and antiseptic potassium permanganate 1 in 8,000 is valuable. Solutions of the dyes are bland, antipruritic, antiseptic, and astringent, but are not to be used to the point of producing scales or scabs which prevent the discharge of infected exudates.

Wet dressings are occasionally of value in soothing and reducing the acute oedema which may accompany sensitization reactions; cold-water bandages are suitable, but should not be used for more than twenty-four to forty-eight hours.

Fomentations should not be left in place for four hours under oiled silk or they will macerate the skin, and if employed in the treatment of infections they will encourage spread. A session of three or four fomentations applied in the course of an hour, once or twice a day, is the better routine. The starch and boric acid poultice is soothing and cleansing for sore and infected surfaces, but a session of two or three, replaced every three or four hours before they have set hard, is preferable to a twelve- or twenty-four-hour application followed by the tearing of the stiffened starch from the skin.

Calamine lotion is a useful application when properly employed. It should not be used as a wet dressing, but should be applied to the skin like whitewash, with a brush, and should be allowed to dry before bandaging. A thin stockinet sleeve (of the type used as padding in the orthopaedic departments) is an admirable dressing. If the lotion is applied with cotton-wool the powder which should be on the skin remains in the wool. The lotion must contain sufficient powder, and I would suggest a prescription of the following proportions:

℞	Calamine, Zinc oxide	... ...	aa 40 gr. (2.6 g.)
	Glycerin	...	30 min. (1.8 ml.)
	Aq. calcis	...	ad 1 oz. (28.4 ml.)

Ft. lot.

If too astringent this may be alternated with or replaced by the following elegant liniment:

℞	Calamine	... ...	40 gr. (2.6 g.)
	Lanolin	... ...	30 gr. (2 g.)
	Ol. oliv., Aq. calcis	...	aa ad 1 oz. (28.4 ml.)

Ft. lin.

By far the most valuable local application, however, is Lassar's paste. Soothing and protective, it rests the skin, protects it from changes of temperature and from the

fering fingers of patient, nurse, and doctor and from inquisitive eyes. Containing as it does 50% bland powder, it does not heat the skin or interfere with respiration or secretion, and it can—as can calamine lotion and liniment—carry a mild antipruritic such as 2% carbolic acid or tar, or a mild mercurial antiseptic. The paste should be smeared on the skin so as to obscure the affected areas and should be covered with stockinet and left undisturbed, further paste being applied when necessary. The virtue lies in the physical character of this stiff paste, and it is important that it should be well dispensed, as is true of most applications used on the skin.

I have never subscribed to the view that doctors were efficient dispensers of dermatological preparations, and have some sympathy with the patient who complains that the hospital preparations are not the same as those which he obtains from his doctor.

A nurse or patient may destroy the value of a paste by heating it for greater ease of application. It should be applied patiently, gently, and evenly with the finger, and to the skin and not to a piece of lint.

The soft paraffin available at the moment is of an inferior quality and lower melting point. The pastes dispensed from this material are unsatisfactory, and the value of treatment is thereby impaired. Psoriasis, which will clear rapidly on Lassar's paste with dithranol 2 gr. to the ounce (4 mg./g.), may show no response to a paste dispensed with this paraffin. The addition of anhydrous lanolin has helped to correct the fault. Titanium dioxide is a bland powder with valuable properties, and can be usefully combined with soft paraffin and an emulsifying base to form a paste.

It is, I think, this important fact of the physical characters of the application rather than the ingredients which accounts for disappointment over the introduction of emulsified bases. These have not, in my experience, made much difference to the local treatment of skin diseases. In theory they are more penetrating and carry the medicaments into more intimate contact with the skin, but, as I have suggested, this is not nearly so important as the protection and support afforded by the preparation, and in this regard soft paraffin remains an invaluable base. The great value of the emulsified base often incorporated in ointments and pastes is that it facilitates their removal, and this is appreciated in treating the scalp.

I would suggest, however, that a practitioner should rarely go beyond the range of those simple and tried remedies which I have enumerated. I would particularly deprecate the use of the anaesthetic ointments and applications now on the market. They readily provoke a sensitization dermatitis which may become widespread and distressing and may leave the skin in a highly sensitive state for a long period.

There is a general feeling that a great increase has occurred in the number of cases of sensitization dermatitis, and not only to these recognized sensitizing agents. I believe this is true, and that eczematous dermatitis is often much more intractable than it was before the war. It has been suggested that diet may play a part in this, and it is possible, though my temperament would incline me to regard emotional and nervous frustration over the past decade as a more potent influence. I would not, however, dismiss the part which may be played by the increasing introduction of sensitizing drugs into topical applications—anaesthetic drugs, sulphonamides, and penicillin being placed high on the list. I have already referred to the intractable character of epidermal sensitization once it is set in motion, and this is an added reason for the limitation of local therapy to simple measures.

Sulphonamides and Penicillin

When sulphonamides or penicillin are considered necessary it is preferable that they should be given by mouth or parenterally, for sensitization by this route, though it may not be helpful, is not such an intractable problem as epidermal sensitization.

Though these drugs have saved lives and proved their value in surgery and in war, that does not justify their promiscuous and irrational use in other spheres and the ready production of disabling dermatoses.

In dermatology it is almost always desirable to employ sulphonamides by mouth and not locally. I believe that the period over which the drug is given should bear some relation to the natural course of the disease. I believe also that dosage should be reasonable and not massive or toxic, and should not be such as to embarrass the natural defence mechanisms of the body, and particularly of the skin, but should assist that natural defence. It is apt to be forgotten that there is a patient when these relatively simple skin infections are attacked, and, with minds charged with chemotherapy, we too often disregard other important factors in the case which relate to the soil which has fallen victim to the infection.

I should qualify this and state that I believe that in certain sites and under certain conditions pathogenic organisms may thrive on a skin or mucous membrane surface without infecting that surface, and a topical application may then serve a useful purpose.

Penicillin has a very small place in ordinary dermatological practice. As a local application, and particularly as a cream or ointment, it is a menace, and penicillin dermatitis has become a common diagnosis in the out-patient department and is a very troublesome affection. It would seem rarely to be necessary to employ the drug for the majority of surface skin infections where there are other effective remedies, and its use in eczematous affections, whether infected or not, carries a high risk of serious aggravation. There would seem to be some clinical evidence that in the parenteral treatment of deeper infections like boils and carbuncles the drug may cut across the natural defence mechanisms and leave the patient, after the cure of the initial lesion, more vulnerable than he was previously.

In this field let me again stress the undesirability of unnecessary interference. Pustules, boils, and carbuncles are better left alone. Squeezing and surgical interference aggravate. Dry heat, short-wave therapy, and *x* rays are better local measures.

X-ray Therapy

I cannot leave the field of local therapy without a word about *x* rays. When used in small fractional dosage, unfiltered and at low voltage (indeed, as Grenz rays if available), they are invaluable in the treatment of all disorders of function in the skin. Dosage and the spacing of treatments must be accurate. The treatment must form part of a scheme of general treatment, for it is only local therapy and is wasted if not supported by general measures. For fear of inadvertent overdosage great care should be taken to ascertain whether the patient has previously received superficial *x*-ray therapy.

Every patient undergoing *x*-ray therapy should receive a card recording the dosage given and should be warned to present that card whenever further *x*-ray treatment is under consideration. This is particularly necessary when giving more than a fractional dose, as in the treatment of ringworm of scalp, keloid, and benign or malignant tumours. Grenz rays are relatively safe, and it is to be hoped that

they will again be made available and will be more widely employed in place of *x* rays.

Thorium X has not, in my hands, been of much value. It will pale, but not clear, a port-wine stain, though it is the only measure that may be effective in that rare dermatosis, parapsoriasis. Theoretically thorium X, as a source of alpha particles, should be a useful and safe measure in the treatment of superficial affections, but it has proved disappointing.

General Treatment

My previous remarks indicate the stress I would place upon the general approach to and investigation and understanding of the dermatological problem as a part of treatment. I would equally stress the importance of general as against local treatment, and general treatment may include the administration of drugs.

I have time for only a word or two upon a few of the drugs more recently introduced, most of them dangerous drugs about which we still have much to learn. They should be used with caution and only where the character, gravity, or intractability of the affection justifies it, and patients so treated should be kept under close clinical observation.

I have mentioned the sulphonamides, which can help considerably in the control of pyogenic affections and in some other ills, such as dermatitis herpetiformis, where the effect would appear to be along some other channel than the combating of infection.

Penicillin is of limited value in dermatology, but will sometimes clear or relieve cases of chronic or recurrent erysipelas or chronic lymphangitis and elephantiasis. One of the distressing effects of penicillin therapy—viz., pruritus and urticaria—may be controlled by another type of drug, the antihistamines. These again are of more interest from the laboratory and experimental point of view than the clinical, but they may be helpful in cases of allergic reaction of known cause and limited course. We cannot feel entirely happy, however, in introducing agents into the system which counteract so essential a metabolite as histamine.

I must say a word about the use of calciferol in massive dosage as employed in the treatment of lupus vulgaris. As a vitamin it may be regarded as harmless, but in this dosage it is dangerous and should not be employed over any long period in the treatment of trivial affections. The effects in lupus vulgaris and in sarcoidosis may be quite remarkable, but a careful watch has to be kept upon the blood chemistry and particularly upon renal function.

The general treatment of disorders of function calls for a careful assessment of the patient as a whole and his adjustment to life and his environment. That assessment must be appreciated and understood by the patient if treatment is to achieve success. I have already referred to this.

Symptomatic treatment will often assist and encourage the patient in his efforts, but it must be sustained and be employed as a help and not as a direct or specific therapy to be prescribed for a limited period. In ideal circumstances the patient employs such symptomatic remedies as the doctor suggests in the light of his understanding of his problem and of the purpose of those remedies. Again, it is important that the patient shall find benefit from and not be disturbed by such measures. They may serve as a supplement to the diet, a substitute for a holiday, an antidote to overwork, worry, or fatigue, or even to counter the stress of an unsuitable climate. They are not of themselves cures for a disease but rather comforts for the patient, and should be recognized as such, and should be employed in a very individual manner and with proper understanding.

GLOBIN INSULIN: A CLINICAL STUDY

BY

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Globin insulin (G.I.) was introduced in 1943 as a slow-acting insulin intermediate in duration of action between protamine-zinc insulin (P.Z.I.) and soluble insulin (S.I.). It is in many respects similar in action to Hagedorn's original protamine or delay insulin. It has been slow to gain recognition in this country, but from the patient's point of view offers the obvious advantage of simplicity, and now that the management of diabetes has become the inculcation of a *modus vivendi* rather than a *regimen valetudinis* it is important to eliminate time-consuming or fussy procedures so far as is possible.

Material

This survey is based on the records of 366 ambulant patients under regular observation who have been taking globin insulin for one to four years. They are drawn from the diabetic clinics of the Royal Sussex County Hospital and the New Sussex Hospital, Brighton, and from private practice. At the present time 68% of those attending one clinic and 66% of those attending the other are on globin insulin. The majority of the patients already attending the clinics were balanced on a combination of P.Z.I. and S.I. given before breakfast. It was recognized that in order to obtain the expected action of S.I. it must not be mixed in the syringe with P.Z.I. (Wauchope, 1940; Peck, 1943), and most of the patients had been taught either to inject one kind of insulin immediately after the other through the same needle or to give two injections. When patients mixed the two kinds of insulin in the syringe the dose of S.I. was equal to or greater than that of P.Z.I and was difficult to assess owing to variations in the amount of mixing (Wauchope, 1940). A few patients were satisfactorily balanced on one dose of P.Z.I., and a few older people of regular habits remained satisfied with two doses of S.I. a day.

At the time globin insulin was introduced the war was in its fourth year, air raids were frequent, and almost all the diabetics attending the clinics were in full work in factories, civil employment, household duties, etc. Many were air-raid wardens in addition. Their hours were irregular, their sleep interrupted, and the insulin had often to be given in poor light. In these circumstances from late 1943 onwards new patients were started on a single dose of globin insulin, usually before breakfast: they were balanced as out-patients unless their illness was first recognized by the onset of coma.

The diet utilized the protein and fat allowed by the Ministry of Food, which, together with the bacon and egg rations, supplied about 1,400 calories: C., 120: P., 280: F., 1,035 (C., 30 g.; P., 70 g.; F., 115 g.). The rest of the calories required were made up mainly of carbohydrate and such protein on "points" as was available. A start was made with 200 g. of carbohydrate, which was added to according to the needs of the patient. In practice very few eat the whole of the fat ration and many have at least one meal a day at a canteen or restaurant.

The results were unexpectedly successful, and gradually G.I. became the insulin of choice. Many patients who had been on P.Z.I. and S.I. and who for one reason or another needed readjustment were changed to G.I.

The times of the clinics allow for a routine blood-sugar estimation about four hours after insulin and breakfast; the patients test their own morning and evening specimens of urine and bring a chart or notebook for inspection.

The criteria for a satisfactory balance are: (1) the comfort and well-being of the patient; (2) the attainment and maintenance of a reasonable weight; (3) absence of thirst or polyuria at any time during the 24 hours; (4) absence of ketosis; (5) absence of insulin reactions; (6) a normal blood sugar before the midday meal; and (7) small amounts of sugar in the morning and evening specimens (green reaction to Benedict's solution). Points 1 to 4 have been almost universally maintained in the absence of complications; points 5 to 7 naturally vary from time to time.

Age

The patients may be considered under three categories according to the age at which they came under observation: (1) the young, who range from 2½ to 20; (2) the active working population, from 21 to 64; and (3) the old, from 65 onwards. The numbers of patients in each category and the dosage of insulin are set out in Table I.

The Young (under 20).—It was expected that these would do well on G.I.; Hagedorn's delay insulin had often been found useful for those whose last meal was at 5 or 6 p.m. and who were therefore prone to insulin reactions at night on P.Z.I.

TABLE I

Age	Dosage of Globin Insulin in Units						Total No. of Cases	Under 40 Units	Over 40 Units
	0–20	21–40	41–60	61–80	81–100	100+			
Under 20 ...	3	7	11	4	2	0	27	37%	63%
Active workers 21–64	90	84	52	10	0	2	238	73%	27%
Retired persons over 65	52	32	9	5	0	3	101	83%	17%
Total ..	145	123	72	19	2	5	366	73%	27%

The buffer substance, of which 1 ml. was put into each bottle of delay insulin, had occasioned difficulties, first because the amount was not always accurately measured and there was not enough for the last bottle of insulin, and secondly because each issue of insulin had to be in multiples of six bottles, which did not accord with the times of the visits. Moreover, soluble insulin had often been combined with the delay insulin so that two kinds were used. Globin insulin given alone was therefore a great advance in simplicity, and was welcomed by the mothers and by the children and young people themselves.

Active Workers (21–64).—The great majority (65%) are in this group; their occupations do not differ from those of the non-diabetic population, and include professions and trades, indoor and outdoor employment, clerks and farm labourers. There is even one serving soldier. Most of those who worked in factories during the war are now in other employment not involving night shifts. Many of the women are housewives responsible for families; there are school teachers, nursing sisters, nurses in training, typists, shop assistants, and domestic servants. Their lives are not without incident, but they have been remarkably free from severe reactions.

Retired Persons (over 65).—Many are of the stable type of diabetic who would do well on any kind of insulin. Some are too fat, but most are normal in health and weight. As would be expected, the majority (83%) are on small or moderate doses (under 40 units).

Dosage

It will be observed from Table I that the majority of patients of all ages (73%) are taking less than 40 units of insulin; this is, of course, not peculiar to globin insulin. It has been suggested (Malins, 1945) that globin insulin has a limited use for patients on small or moderate doses; it is pertinent, therefore, to consider those on the larger doses. In this series the only category in which the majority are taking over 40 units is that of the young people; the dosage is, however, not high, only two patients taking over 80 units (88 in each case).

One is an overgrown thin lad, now 18, who came under observation in 1941 at the age of 10. He was difficult to balance, having a low renal threshold, and for five years was first on P.Z.I. and S.I. and latterly on a combination of P.Z.I., delay insulin, and S.I. (total dosage 88 units) in an attempt to avoid reactions. He began G.I. in January, 1946, and has been much steadier on 80 to 88 units; he has left school and is working as a newsagent.

The other patient is the daughter of a farm labourer in a remote country district where supervision and a satisfactory diet have been impossible; she came under observation in 1942 at the age of 10 and during the next two years was often admitted to hospital for rebalancing after insulin reactions or ketosis. She has been on globin insulin since January, 1944, and has had no reactions beyond an occasional shakiness before meals. She has just left school at 16 and is working as a daily domestic.

The largest individual doses in this survey are taken by patients in the category of active workers—two women on 156 and 176 units.

One is an example of the case whose needs rise steadily. She is an energetic housewife, now aged 53, and has had no illness or reactions. The only complication is benign vascular hypertension. From 1936 to the end of 1941 she was on two doses of S.I.; the total was raised from 48 to 100 units to balance blood-sugar readings of over 300 mg. per 100 ml. From January, 1942, to August, 1944, she was on P.Z.I. and S.I., which was raised from 96 to 120 units, the blood sugar being again over 300 mg. per 100 ml. on many occasions. From September, 1945, till the present time she has been on G.I.: starting with 120 units, she reached a maximum of 180 units in 1946, and is now on 156 units. The blood-sugar estimations have been more reasonable, 218 mg. per 100 ml. being the maximum in 1947, with a minimum of 87 mg. Her weight, 9 st. 6 lb. (59.9 kg.) in 1936, is now 10 st. (63.5 kg.).

The other is a stout hard-working ward maid now taking 176 units. Her blood sugar is usually in the region of 175 mg. and her needs have been high from the outset in 1946. She began with 80 units of G.I. and was raised fairly quickly to 170 to 180 units, on which she has remained steady.

Of the old people 83% are taking less than 40 units, but it is surprising to find three women on doses of over 100 units.

The first is a thin old person of 78 who has been on 120 units for the last two years and who comes to the clinic from a neighbouring town 10 miles away. The second, on 156 units, is now 64. She has had diabetes for over 20 years and came under observation 16 months ago with thirst, loss of weight, and lassitude. She was on 60 units of S.I. in the morning only, and her blood sugar four hours afterwards was 300 mg. per 100 ml. She was balanced on G.I., and has taken 112 to 120 units since September, 1947, with excellent control. The third, a woman of 65, was an in-patient at the National Hospital for Nervous Diseases for the investigation of a cerebral lesion when glycosuria was discovered in 1946. She returned home, and her diabetes was balanced on 100 units of G.I. She has been fairly stable on 104 to 108 units since early in 1947.

The patients on the larger doses of globin insulin do as well as those on moderate or small doses. There is no clinical difference, and none in this series are of the unstable type of case. They are not subject to reactions, and apart from the third case, just mentioned, have no complications. It will be seen that in Case 13 (Table II) 124 units of G.I. gave a steady level throughout the day; the patient was sent home on 128 units.

Insulin Reactions

Among 150 patients whose notes are well documented over several years, 40 (27%) reported reactions and 110 did not. Most of those who reported any reactions have had many during the years of observation. Eleven who were formerly on a different insulin have had reactions on both: in two cases they were severe on P.Z.I. and S.I. but slight on G.I. In addition six reported reactions on other insulins

and none on G.I. Of the whole number of reactions reported, only three were severe. These cases were (1) a corporation labourer who mistook the strength of insulin supplied, injected a double dose, and was brought to hospital in coma; (2) a man driving a car who omitted his mid-morning lunch, was summoned and deprived of his driving licence; (3) a woman on G.I. since 1944, reported being taken home incapable in a police car at tea-time: she has always been subject to reactions, and when on P.Z.I. and S.I. had many severe attacks, in one of which she was admitted to hospital in coma.

The incidence of reactions is not related to the age of the patient nor to the dosage of insulin; the young people have had few and the old have not been free. The third patient just mentioned, who had more reactions than any in the series, is a married woman of 53 taking about 40 units—one would suppose a moderate case. It is generally difficult to relate the reactions to the carelessness of the patient.

The Time of Reactions.—The times of 126 reactions on globin insulin taken before breakfast, as reported by the patients, are: midnight to 7 a.m., 12; 10.30 a.m. to 1 p.m., 75; 3 to 6 p.m., 30; 7 to 10 p.m., 9. It is perhaps surprising, in view of the reputed slow action of globin insulin, to find that by far the greatest number of reactions occurred from 2½ to 5 hours after taking it. A mid-morning lunch is as necessary with G.I. as with P.Z.I. and S.I. The next common time is in the afternoon about tea-time, so that it is a mistake to omit or be late for tea. A few reactions have occurred between midnight and breakfast, but in most cases it is unnecessary to take a late buffer meal. The fewest reactions were reported in the late evening before and after supper, and this is the time of day when the blood sugar is usually at its highest.

Patients appear to dread nocturnal reactions, though to an observer it would seem to be a safer and more convenient time than when out and about. Many have spoken of the relief from this dread afforded by globin insulin. Local reactions have been inconspicuous and mainly due to error in the technique of injection; a few patients complain of more stinging than with other kinds of insulin.

Examples of Satisfactory Control

It is difficult to demonstrate by figures the success or otherwise of insulin control. A few clinical examples of satisfactory balance are given.

The Ordinary Case.—A cowman aged 45 came under observation in 1944; his symptoms had been present for one month. He was tall and thin and weighed 11 st. 7 lb. (73 kg.). No physical signs of disease were found. A radiograph of the chest revealed fine fibrosis at the base of the left lung but no evidence of pulmonary tuberculosis. There was moderate hypochromic anaemia. His blood sugar was 240 mg. per 100 ml., and there was heavy glycosuria with traces of ketones in the urine. He lives in a village 18 miles away from the hospital, and continued at work. He was balanced in a few weeks, and has remained on G.I. 54 to 56 units since November, 1945. He has had no reactions and the range of blood-sugar estimations has been from 100 to 150 mg. per 100 ml. He now weighs 12 st. 6 lb. (78.9 kg.). His work is extremely hard; he rises in the dark in winter to milk and works till sunset in the harvest. His appetite is enormous, and he eats mountains of bread and potatoes.

The Man Working on Shifts.—A police constable aged 35 came under observation in November, 1944. His symptoms were of 10 days' duration: thirst, polyuria, loss of weight, lassitude, inability to run upstairs. He was 6 ft. 2 in. (1.85 m.) in height and weighed 10 st. (65.3 kg.). No physical signs of disease were found. There was heavy glycosuria, but no ketosis, although the blood sugar was 660 mg. per 100 ml. He was off work for three weeks, and was balanced as an out-patient on G.I. 54 units. Since January, 1945, his insulin needs have varied between G.I. 50 and 56 units. The blood sugar, taken at intervals of one to two months, has been twice above normal limits—250 and 220 mg.—and has otherwise varied between 115 and 180 mg.; he has had no reactions; his weight is now 11 st. 9 lb. (73.9 kg.). His only sick leave was on account of a Colles's fracture sustained in the course of his duties. His shifts vary from week to week: (*a*) 6 a.m. to 2 p.m.; (*b*) 2 to 10 p.m.; (*c*) 10 p.m. to 6 a.m.; the time of taking insulin is varied accordingly.

Various Types of Insulin.—A girl who came under observation in 1927 at the age of 19 was balanced in hospital on S.I. three times a day. She remained on this system from December, 1927, to December, 1939. The diet was 2,000 calories, with about 60 g. of carbohydrate. Her weight increased from 8 st. 8 lb. to 11 st. (54.4 to 69.8 kg.). There was persistent glycosuria, and her blood sugar varied from 275 to 480 mg. per 100 ml., except for an isolated occasion when it was 150 mg. She was admitted in pre-coma in 1928 and 1932, and appendicectomy for acute purulent appendicitis was performed in 1932. In 1936 radium was applied for menorrhagia, and after this she began to have bad insulin reactions on S.I. 70–80 units a day, in three doses. Blood-sugar estimations of from 77 to 350 mg. were recorded during the years 1936 to 1939 inclusive. In December, 1939, a mixture of P.Z.I. and S.I. was given in the morning with, at first, S.I. in the evening, the total dosage varying from 75 to 88 units. The carbohydrate of the diet was increased to 150 g. She continued to have many reactions; the blood sugar ranged from 71 to 283 mg. per 100 ml. and she was admitted in insulin coma in 1941. In 1942 and 1943 she was rather more steady. In 1944 she underwent hysterectomy for menorrhagia due to fibroids. After this she began globin insulin, and, apart from one admission in diabetic pre-coma owing to an intercurrent illness, has been much steadier and has reduced the dose from 72 units to 34. She has had no reactions, is taking 250 g. of carbohydrate, weighs 10 st. 6 lb. (66.2 kg.), and is in full work as a housekeeper.

This remarkable case, which has been in the hands of many physicians and surgeons, is noteworthy for four reasons. First, the long duration; secondly, the persistence of hyperglycaemia during the first 12 years of the patient's diabetic career; thirdly, the successful weathering of two major operations; and, finally, the present well-being, reduction of insulin needs, and hard-working capacity at the age of 40.

A Child.—John D. came under observation in 1942 at the age of 5. He was balanced as an in-patient on 14 units of delay and 14 units of soluble insulin. His weight was 3 st. ½ lb. (19.3 kg.). He went to school and was inclined to have reactions on the way home, so that the soluble insulin was gradually eliminated, but it was again found necessary in 1943. At the end of 1943 his weight was 3 st. 7 lb. (22.2 kg.), he was on D.I. 20 and S.I. 10 units, and his blood sugar had varied during 1943 from 268 to 507 mg. per 100 ml., while reactions at tea-time were reported. In January, 1944, he began globin insulin and has continued satisfactorily. He is now 11, is 4 ft. 7 in. (1.4 m.) in height, and weighs 5 st. 2½ lb. (32.8 kg.). He has had no reactions for a year. This case illustrates the difficulties of insulin treatment of a child in a large family and the relief afforded by a simple procedure. He is the sixth in a family of seven; his father is a working-man who gives the insulin (G.I. 40 units: 80 units to the ml.) at 7.15 a.m. before he goes to work. His mother prepares breakfast for the father, two youths at work, and five children for school. It may be supposed that John's diet is free; he has dinner at school and comes home to tea at 5 p.m.

Control Throughout the Day

In order to obtain a view of the control during the day the records of patients who have been in hospital for some complication and whose blood sugar has been estimated before leaving are shown in Table II. It will be seen that in most cases the blood sugar rises in the evening, falls during the night, and is lowest before midday dinner; this is consistent with the experience of out-patients in the times

TABLE II

Case No.	Age	Globin Insulin in Units	Blood Sugar in Mg. per 100 ml.			
			6 a.m.	Noon	6 p.m.	10 p.m.
1	37	32	175	125	200	
2	30	60	116	—	131	
3	7	38	75	256	118	
4	16	120	112	85	225	
5	65	16	162	—	150	
6	57	60	156	131	93	
7	51	16	150	—	193	
8	50	32	137	143	100	
9	70	40	106	112	243	
10	70	20	106	187	87	
11	55	12	100	131	181	
12	61	42	168	212	137	
13	68	124	181	231	187	
14	63	32	62	93	181	
15	12	28	112	112	125	
16	42	24	106	225	106	
17	19	36	193	100	200	
18	36	32	131	234	156	
19	64	12	112	162	212	
20	21	68	112	140	131	
21	21	68	474	137	200	394

of their reactions. The control was reasonably good, though in some of the cases a readjustment of the dosage or the times of the meals was made before the patient left hospital —e.g., cases 3, 13, 14.

Failures

In a few cases there is an escape of control in the late evening, sometimes lasting all night and causing nocturnal polyuria. Often a redistribution of the times and amount of food rectified it, or a temporary evening dose of 8–12 units of soluble insulin while the globin is being adjusted is indicated; this can be left off gradually after a week or two. Case 21 (Table II) shows this escape—Case 20 is the same patient after readjustment.

In those few cases in which the blood sugar is low at noon and the evening dose remains necessary a transfer to P.Z.I. alone may solve the difficulty. This has been successful in the cases of two boys.

Discussion and Conclusions

It has been questioned whether, since P.Z.I. and S.I. in various combinations give good results, there is need for a third type of insulin. Rabinowitch *et al.* (1947) discuss this, and after careful studies of ambulant patients on P.Z.I. or G.I. alone, P.Z.I. and S.I. in separate syringes, or S.I. twice a day found that the fasting blood sugar was lower with P.Z.I. alone than with G.I. alone, but the postprandial level was lower with G.I.: they obtained the best control with G.I. in the morning and P.Z.I. in the evening. Roberts and Yater (1947) in a survey of 97 cases recorded a better control with G.I. than with P.Z.I. in 70. Malins (1945), in a clinical study of 36 cases, considered that globin insulin has a limited place in the treatment of mild and moderately severe cases.

My impression has been—and a survey of the notes confirms it—that all types of patient do as well on a single dose of globin insulin each day as on other kinds of insulin, singly or in combination. From the doctor's point of view it is easier to adjust the dose than with the varying combinations of P.Z.I and S.I. even when they are given separately; when they are mixed in the syringe a stable balance is always difficult.

The speed and efficiency of the clinic is increased. The opportunities for mistakes and confusion in measuring the dose are greatly lessened, as is the time consumed in teaching the patient self-administration. P.Z.I. given alone has the same advantages, but, owing to the longer time which elapses before it begins to act and the prolonged duration of the action, is of limited application.

Nearly all patients who have transferred from another type of insulin to G.I. prefer it on account of its simplicity. Many who, for one reason or another—e.g., being admitted to other hospitals—have been rebalanced on P.Z.I. and S.I. have asked to return to G.I. They say that they feel safer from reactions and that it is much easier and quicker to take.

Globin insulin is, I believe, likely to become the insulin of choice in ambulant uncomplicated cases. It achieves the maximum degree of simplicity so far attainable—one dose of one kind of insulin once a day. Soluble insulin remains the type for use in all emergencies.

Summary

The notes of 366 diabetic cases treated as out-patients with globin insulin are reviewed; the dosage of insulin in different age groups and the incidence and times of reactions are recorded, and an attempt is made to assess the degree of control obtained.

The opinion is put forward that globin insulin alone is the best type of insulin available at present for uncomplicated ambulant cases of diabetes.

It is a pleasure to thank Dr. Prowse and the other physicians and surgeons of the Royal Sussex County Hospital, and those of the New Sussex Hospital, for the use of notes of cases seen by them before they came under my care.

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RENAL COMPLICATIONS IN DIABETES MELLITUS

WITH SPECIAL REFERENCE TO THE KIMMELSTIEL-WILSON LESION

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In the prolonged observation of patients under treatment for diabetes mellitus one of us has been impressed with the relatively frequent occurrence of albuminuria. In a number of these cases clinical and laboratory evidence of progressive renal failure was observed, and the condition was often complicated by retinal changes and hypertension. These changes were earlier interpreted as evidence of progressive vascular degeneration in most instances, but the observation made by Kimmelstiel and Wilson in 1936—that a pathological change in the glomeruli of the kidney seemed to be a typical finding in diabetes—suggested a review of this problem.

Kimmelstiel and Wilson (1936) observed hyalinization of intercapillary connective tissue in the kidney in eight patients, all of whom except one had suffered from diabetes and in whom, terminally, oedema and renal failure had occurred. They named this condition intercapillary glomerulosclerosis. Following on this observation several workers contributed further examples from both the pathological and the clinical aspect. Anson (1938) found six diabetic cases with similar lesions. Derow, Altschule, and Schlesinger (1939) reported a further example, and in the same year Newburger and

Peters (1939) published a review of nine cases, with post-mortem evidence in four. Herbut (1941), in a review of 2,000 consecutive necropsies at the Jefferson Hospital, Philadelphia, found a further nine cases fulfilling all the requirements previously described. Porter and Walker (1941) published the results of an analysis of the clinical and laboratory features of eight cases, with post-mortem verification in six of them. Siegal and Allen (1941) found the characteristic glomerular lesion in 35 out of 105 diabetics, and Horn and Smetana (1942) recorded the finding of 33 cases out of a total of 144 diabetics. Since then there have been publications on this subject by Mauser, Rowe, and Michael (1942), Laipply, Eitzen, and Dutra (1944), and Bell (1946). The last-named devotes an entire chapter of his monograph to it.

In spite of these contributions there seems to be as yet no general recognition of this complication in the diabetic life, and so far as we are aware no review of this subject has appeared in the British literature. This may not be surprising, since most of the work appeared in America during the war years.

Presentation of Cases

The material analysed in this paper consists of data collected from 24 patients suffering from diabetes mellitus in whom progressive renal complications have been observed and in seven instances followed to necropsy. In the majority the clinical manifestations were diabetes for a longer or shorter period followed by hypertension, arteriosclerosis, retinopathy, albuminuria, and chronic uraemia, although not always definitely in that order.

The cases, presented in the accompanying Table, are provisionally divided into groups, although in a few instances overlapping may occur: (1) twelve patients showing the onset of hypertension and renal failure after a prolonged diabetic state; (2) three patients who developed symptoms and signs of subacute nephritis during the course of diabetes; (3) six patients who at the time of their initial complaints were found to have coincident diabetes, arteriosclerosis, retinopathy, and renal damage; (4) three patients with diabetes and intercurrent urinary infections resulting in renal failure.

Group 1

All the patients in this group with one exception were over 50 years of age, and all with one exception had a long history of diabetes, having been observed over the course of the disease by one of us. The average duration was 10 years. The degree of diabetes was moderately severe in all but two cases. The incidence of diabetic coma as an episode was low in this group. In Case 2 the onset of the disease was with severe diabetic acidosis, and in Case 3 diabetic coma had occurred once. Incidents of sepsis occurred occasionally, but only in Case 2 could these be classed as numerous.

Details of Cases

Case No.	Age and Sex	Diabetes: Duration Years	Diabetes: Insulin Units	Hypertension: B.P.	Hypertension: Duration Years	Retinitis: Duration Years	Urine: Albumin	Urine: Casts	Urine: R.B.C.	Urea Conc. Test Max. Value	Blood: Urea	Blood: Proteins	Blood: A/G Ratio	Blood: Haemoglobin	Oedema	Effusions	Mode of Death	Necropsy Reports
Group 1																		
1	62 F	17	15–15	190/100	12	10	++	+	—	—	75	—	—	86	+	+	Uraemia	K.W. lesions, Grade 1. Nephrosclerosis
2	43 M	13	28–28	155/85	3	2	+	+	+	1·6	60	5·4	1·7/1	82	Slight	—	Coronary thrombosis	
3	52 F	13	30–25	175/105	3	1	++	+	—	1·04	126	—	—	—	..	—	Uraemia	K.W. lesions, Grade 1. Pyelonephritis, Nephrosclerosis
4	60 F	12	24 P.Z.I.	250/110	1	1	+	+	+	1·74	86	7·6	1·9/1	76	..	—	Alive	
5	59 F	3	15–15	250/110	½	?	+++	++	+	1·3	120	5·5	1·3/1	94	+++	+++	Uraemia	K.W. lesions, Grade 3. Subacute nephritis. Nephrosclerosis
6	67 F	10	15–15	205/105	5	Present	++	+	—	1·56	49	—	—	98	+	+	Congestive heart failure	K.W. lesions, Grade 2. Nephrosclerosis —slight
7	55 F	11	17–17	170/110	3	2½	++	+	+	0·94	93	6·1	3.54/1	81	+	—	Cerebral haemorrhage	No P.M.
8	66 M	14	30–30	208/100	12	Present	++	++	+	1·38	64	—	—	—	+	—	Cerebral thrombosis Uraemia	No P.M.
9	51 M	7	12–12	160/100	4	—	++	+	+	1·0	207	—	—	—	+	—	Uraemia	No P.M.
10	66 M	17	30 P.Z.I.	190/130	8	8	++	+	+	—	66	—	—	—	+	+	?	No P.M. } Died out of hospital
11	69 F	7	Nil	240/110	6	?	++	+	+	—	71	—	—	—	—	—		No P.M. }
12	71 F	15	10 P.Z.I.	165/95	Not known	Not known	+++	—	—	—	185	—	—	60	++	—	Uraemia	K.W. lesions, Grade 3. Nephrosclerosis
Group 2																		
13	38 M	15	32–32	174/90	12	—	++	++	+	2·1	71	4·85	—	—	++	++	..	Subacute nephritis
14	28 M	14	32 Globin	145/100	1	2	+	+	+	—	—	—	—	—	+	—	..	No P.M. Died out of hospital
15	34 F	18	28 P.Z.I. –10	170/105	7	Nil	+	+	—	2·3	41	6·56	1·5/1	76	+	—	Alive	
Group 3																		
16	75 M	1	Nil	168/80	1	1	++	+	+	1·4	46	7·61	2·2/1	100	Slight	—	..	
17	61 M	4	24 P.Z.I.	255/100	4	Present	Trace	+	+	—	40	—	—	—	++	+	..	
18	40 F	½	14 P.Z.I.	190/110	½	½	++	++	+	1·4	60	—	—	68	Slight	—	..	
19	56 M	2	12	205/105	2	?	+	+	+	1·8	186	—	—	68	+	—	Uraemia	No P.M. Died out of hospital
20	61 F	10	8–8	200/110	10	1	+++	+	+	—	47	5·6	1·5/1	100	++	++	Coronary thrombosis	No P.M.
21	60 F	2	18 P.Z.I.	190/90	2	Not known	++	+	—	1·0	—	—	—	90	+	—	Uraemia	No P.M. Died out of hospital
Group 4								Pus	Organ.									
22	66 F	12	16 P.Z.I.	210/110	5	4	+	+	*B. prot.*	—	132	—	—	64	+	—	Alive	
23	62 F	1/12	18–18	—	—	Nil	+	+	*B. coli*	1·7	74	—	—	70	—	—	Uraemia	K.W. lesions, Grade 1. Pyelonephritis, Nephrosclerosis
24	70 F	8	6	230/120	8	Nil	+	+	*B. coli*	1·7	93	6·86	1·4/1	64	++	—	Alive	

Hypertension was of the more severe degrees in all except three instances, and only in two was the diastolic pressure below 100 mm. Hg. In seven instances hypertension appeared relatively late in the disease, from five to ten years after the onset of diabetes. Retinal changes usually appeared at periods of one to two years after hypertension was observed. Albuminuria was noted quite early in the disease in several instances, being sometimes transient but usually present when hypertension was established. Evidence of failing kidney function could nearly always be found by urea-concentration or urea-clearance tests in the earlier stages. Moderate increases in blood urea were usually present for about three years. The later stages of renal failure were nearly always accompanied by hypochromic anaemia of mild degree. Oedema, at first of the feet, occurred early in the onset of renal failure and was usually accompanied by hypoproteinaemia where this was investigated. In most cases generalized oedema occurred and in three cases was severe, being accompanied by ascites and pleural effusions. Detailed descriptions of Cases 1 and 5 illustrate the course and mode of termination of this group.

Case 1

This patient was first seen in 1926 complaining of loss of weight, thirst, polyuria, and pruritus of a few months' duration. The urine contained sugar but no acetone or albumin. Both eyes showed central conical nebulae, but peripheral fields were full and no fundal changes were present. A sugar-tolerance test showed moderately severe diabetes with blood-sugar values of 0.202, 0.256, 0.271, 0.306, 0.271%. The patient was treated by diet alone and continued in fair health for the next five years. In 1931 she was admitted to hospital complaining of pain in the left renal angle. There was a moderate degree of cardiac enlargement and the blood pressure was 172/94. No evidence of a renal calculus was found. Treatment with insulin (15+15 units) was started and the blood sugar was kept within the limits of 0.142 to 0.177%. Examination of the eyes showed a few retinal haemorrhages.

From 1931 to 1934 the patient attended the diabetic clinic regularly. Her weight increased from 138 to 142 lb. (62.6 to 64.4 kg.) during this period. The blood sugar remained within the limits of 0.139 and 0.201%. The Wassermann reaction was negative and a test meal showed achlorhydria. No albumin was found in the urine during this time. The blood pressure increased to 185/100. Vision showed gradual degeneration from lens opacities, vitreous opacities, retinal haemorrhages, and exudates. The blood urea was 21 mg. per 100 ml.

In 1935 and 1936 the blood sugar was less easily controlled, the value increasing to 0.279%. The blood pressure rose to 190/100 and the blood urea increased to 44 mg. per 100 ml. During 1937 to 1939 the patient began to lose weight and to

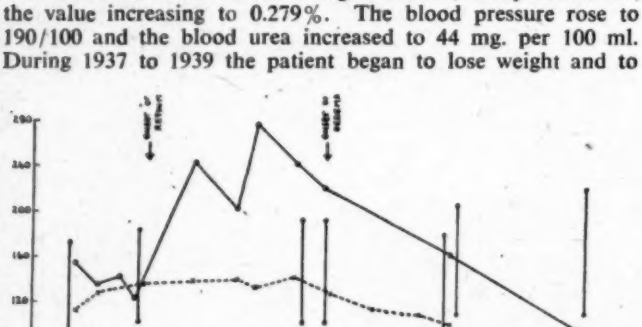

FIG. 1.—Showing progress of disease in Case 1.

have transient oedema of the ankles. In 1940 her weight fell to 110 lb. (49.9 kg.); there was oedema of both ankles, sepsis of the right great toe, and albuminuria, with pus cells and granular casts in the urinary deposit. The blood sugar was kept under good control (in the region of 0.1%), but the blood urea had increased to 63 mg. per 100 ml. In 1943 the patient was admitted to hospital, weak, tired, drowsy, and with sickness, vomiting, and oedema. The blood sugar was normal and the blood urea 75 mg. per 100 ml. The urine showed much albumin and numerous hyaline and granular casts. She lapsed into coma

FIG. 2.—Case 1. Composite photomicrograph ×140 H. and E.

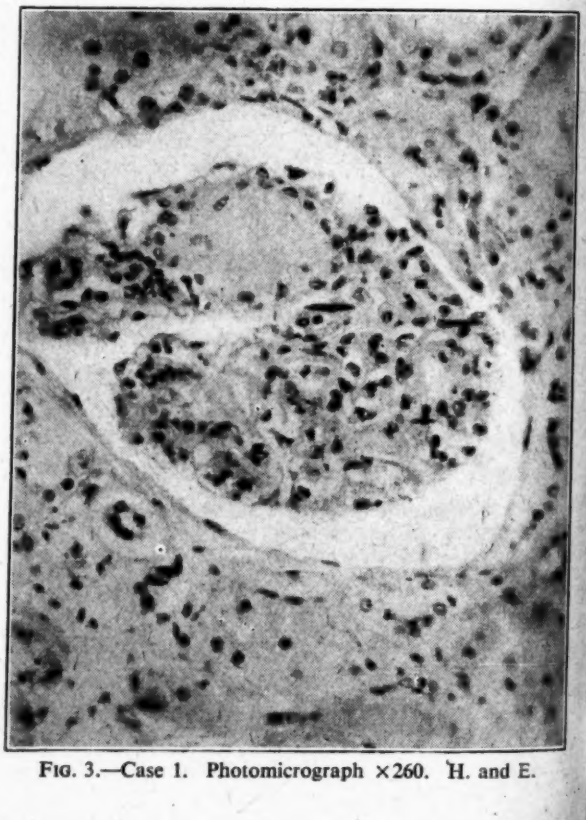

FIG. 3.—Case 1. Photomicrograph ×260. H. and E.

of the uraemic type and died. Graphically the course of the disease is presented in Fig. 1.

At necropsy oedema of subcutaneous tissue, pleural effusion, and gelatinous oedema of the meninges were found. The kidneys were enlarged, firm, and tense under the capsule. The naked-eye appearance was of chronic nephritis or nephrosclerosis with subacute glomerulonephritis superimposed. Dr. Jane Davidson's report on the microscopical changes was: "The glomeruli are of very unequal size, some hypertrophied and others completely functionless and transformed into hyaline foci. Many of the glomeruli show the presence of homogeneous eosinophilic material, which does not stain for amyloid and presumably represents hyaline thickening of the glomerular capillaries. Some of the afferent arterioles show thickened walls in which the same eosinophilic hyaline material is present, diminishing their lumina." Figs. 2 and 3 illustrate the pathology of the kidney.

In summary, this case showed diabetes of moderate severity for 17 years, with onset of hypertension and retinopathy after five years and of albuminuria after 14 years—low-grade subacute nephritis terminating in uraemia with oedema and the kidneys showing changes which are now described as intercapillary glomerulosclerosis.

Case 5

This patient, aged 59, visited the Eye Institute complaining of failing vision in February, 1945, and a diagnosis of diabetic retinitis was made. Questioning elicited a history of polydipsia, polyuria, and neuritic pains of some months' duration, and she was referred to the diabetic clinic, where the diagnosis of diabetes mellitus was confirmed. At this time there was a trace of albumin in the urine. A diet of 1,500 calories was prescribed, and during the next year the patient's condition improved, the albuminuria disappeared, and glycosuria was minimal.

On Jan. 2, 1947, she was admitted to hospital with swelling of the legs and abdomen, fatigue, and frequency of micturition. She had not been adhering strictly to her diet. She was plethoric and dyspnoeic, but there was no cyanosis. The blood pressure was 250/110, with a pulse rate of 100. A small effusion was present at the right base, with bilateral basal rales. The heart was enlarged to the left clinically. The abdomen showed oedema of the abdominal wall and ascites. The liver edge, though just palpable, was not tender. Fundal examination revealed macular changes and numerous haemorrhages—a diabetic retinopathy. A lens opacity was noted on the right side. The urine showed much sugar and albumin but no acetone, and microscopy revealed epithelial cells, pus cells, and granular casts. The blood sugar was 0.306%, blood urea 38 mg. per 100 ml., plasma CO_2 58 vols.%, total plasma proteins 5.41 g.%, with an A/G ratio 2.7/1. Radiograph of chest showed fluid at both bases.

Insulin, 15 units twice daily, was prescribed, and within one week the urine became sugar-free and the blood sugar fell to normal levels. The albuminuria persisted throughout the course of the illness and the oedema and ascites increased in spite of mercurial diuretics, paracentesis, and the intermittent application of Southey's tubes to legs and thighs. During April, 1947, 20 pints (11.36 litres) were withdrawn by these methods, and in May, 1947, 42 pints (23.86 litres) were evacuated. The blood pressure remained high.

A urea concentration test was carried out on May 7, showing a maximum concentration of 1.3% with a standard clearance of 17%, and the blood urea rose slowly to 120 mg. per 100 ml. The specific gravity of the urine varied from 1010 to 1020, and the urinary deposit always showed hyaline and granular casts and occasionally epithelial cells, pus cells, and red blood cells. The plasma CO_2 was continually between 52 and 61 vols.%. The protein content of the oedema fluid was 0.7 g.% initially, falling steadily to 0.47 g.% on June 29. The A/G ratio of the plasma altered from 2.7/1 to 1.3/1 before the patient's death on July 19. Necropsy showed Kimmelstiel–Wilson lesions Grade 3, nephrosclerosis, and subacute nephritis (Figs. 4 and 5).

Group 2

This group consists of three patients aged 28 to 38, all of whom developed diabetes in early life and complained later of swelling of the feet and legs—during the course of pregnancy in Case 15. The clinical picture in the later stages, especially in that of Case 13, was very similar to that of Case 5, with diabetes, albuminuria, and hypoproteinaemia, the intense oedema requiring relief by Southey's

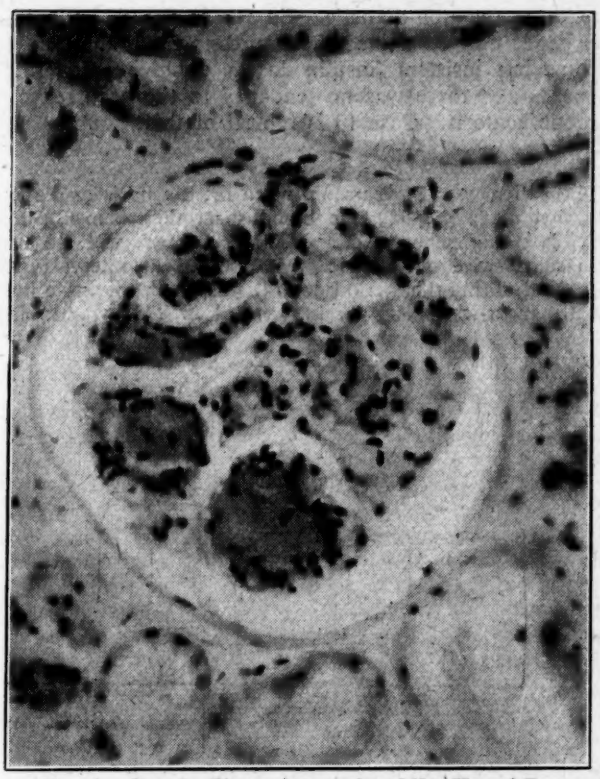

FIG. 4.—Case 5. Photomicrograph ×260. H. and E.

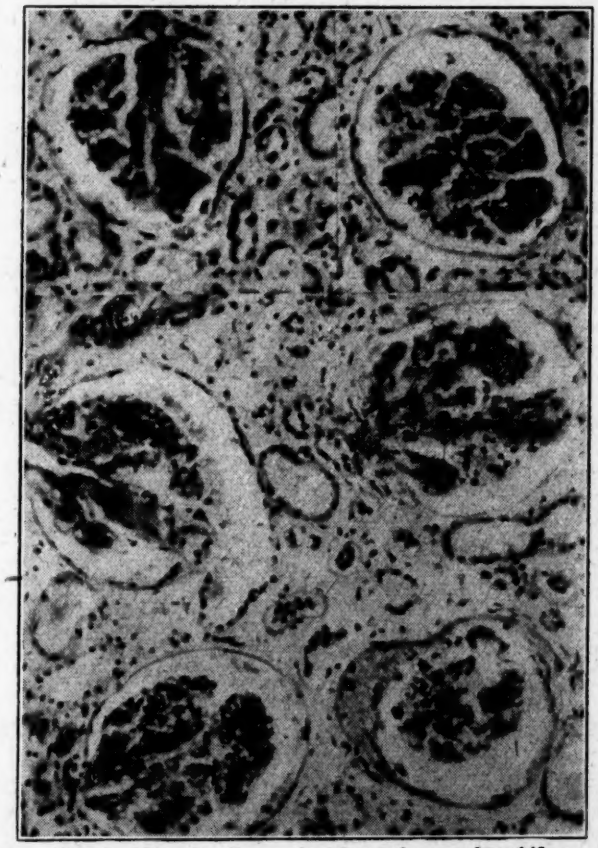

FIG. 5.—Case 5. Composite photomicrograph ×140. H. and E.

tubes and the ascites necessitating repeated paracentesis. The only real difference between the two cases was the absence of retinal haemorrhages and exudates in Case 13 and the lower blood-pressure readings during the later phases of the disease. The course taken after subacute nephritis supervened was similar to the history of that disease in the non-diabetic. So far as the diabetic state was concerned we gained the impression that the diabetes became less insistent (insulin dosage could be moderately reduced) and there was no tendency to the occurrence of diabetic acidosis. Case 13 is typical of this group.

Case 13

The patient was 24 years old when the diagnosis of diabetes was first made in 1929, the blood sugar then being 0.302%. He was stabilized on a diet of 2,316 calories, with 10 units of insulin twice daily. He was observed at intervals until 1932, and during this period control was good, the urine being usually sugar-free. His weight was 161 lb. (73 kg.). In 1933

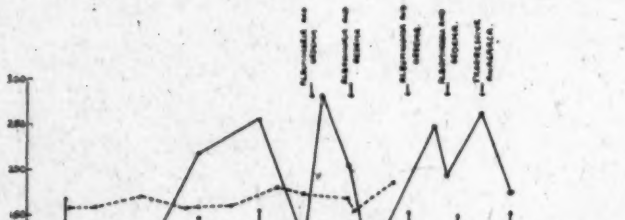

FIG. 6.—Showing progress of disease in Case 13.

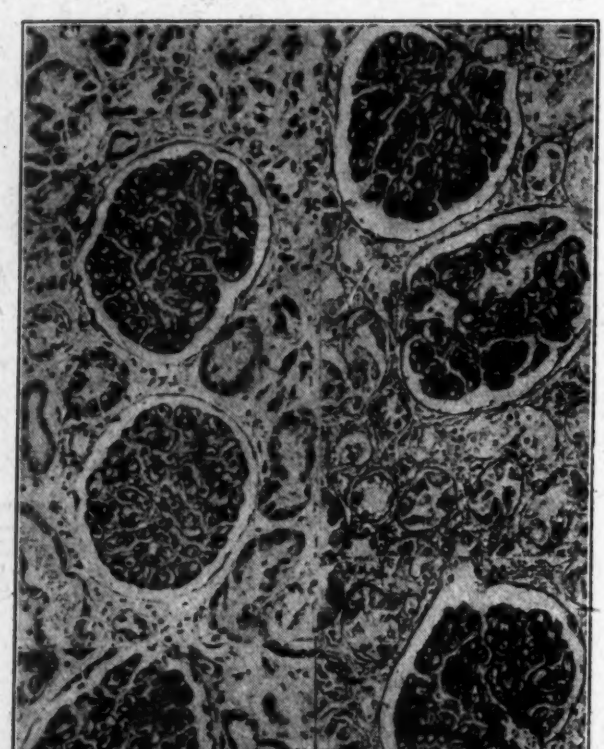

FIG. 7.—Case 13. Composite photomicrograph ×140. Right half: aniline blue, orange G. Left half: H. and E.

he had cervical adenitis and, later, an attack of shingles. For a short time thereafter the pulse rate was fast. Between 1934 and 1937 he continued to follow his work as a cabinet-maker and his weight increased to 174 lb. (78.93 kg.).

In 1937 he complained of being easily tired and of weakness of the legs, and was admitted to hospital for observation. Diabetes was found to be well controlled on insulin, 32 units twice daily. There was no oedema, muscular weakness of the legs, or neurological phenomena. The fundus oculi was normal, the pulse rate 80, and the blood pressure 145/80. During 1937 and 1938 the patient was twice admitted to hospital with mild hypoglycaemia, and insulin was reduced from 36 units twice daily to 32 units twice daily. In 1939 his weight had increased to 182 lb. (82.55 kg.). In 1940 he had German measles, and a few months later developed transient arthritis of the fingers and wrists.

In 1941 he complained of swelling of his feet and was admitted to hospital. There was generalized oedema of a moderate degree. The urine showed much albumin, with a deposit containing epithelial casts. The blood urea was 45 mg. per 100 ml., plasma protein 4.13 g.%, plasma chloride 555 mg. per 100 ml., and blood sugar 0.246%. The oedema disappeared with rest in bed and mild diuretics, and the albuminuria cleared a little later. Insulin dosage was reduced to 20 units twice daily. In 1942 albuminuria recurred with slight oedema. Renal function tests at this time showed urea concentration up to 3.1% and blood urea 31 mg. per 100 ml. The albuminuria rapidly cleared on this occasion but recurred six months later, when the patient was again admitted to hospital (September, 1942) with generalized oedema. The blood pressure was 164/115, blood urea 64 mg. per 100 ml., and the urine contained much albumin and a number of granular and hyaline casts and red blood cells. The plasma chloride was 526 mg. per 100 ml. and plasma protein 4.85 g.%. Fundal examination showed no abnormality. Insulin dosage was 24 units twice daily. Various methods were tried to deal with the oedema, including mercurial diuretics and Southey's tubes. After six months his improvement was only moderate but he was allowed out of hospital, only to be readmitted later in 1943 with intense oedema which terminated in septic infection of the legs, pleural and ascitic effusions, pulmonary congestion, and terminal pneumonia. The course of the disease is presented graphically in Fig. 6. Post-mortem examination revealed evidence of subacute nephritis without K.W. lesions (Fig. 7).

Group 3

This group consists of six patients, all in the later decades with one exception; in these the history of the diabetic state is short, and the whole clinical picture of diabetes, hypertension, retinitis, albuminuria, and renal damage was already present when the cases first came under observation. So far as the clinical manifestations go they are indistinguishable from cases in Group 1 except for the short history of diabetes, but they may be quite different in pathogenesis, the whole picture, including diabetes, being the result of one degenerative process. Since this group is well recognized among clinicians it is deemed unnecessary to describe any case in detail.

Group 4

In this group are three patients with a diabetic history and urinary infections resulting in pyelonephritis and renal failure. These cases are differentiated by the typical urinary findings, and should not be confused with groups already described.

Summary of Pathological Findings

Pathological reports on the seven cases which came to necropsy are given below. Focal glomerular lesions of the type described by Kimmelstiel and Wilson are defined on the basis of the criteria suggested by Siegal and Allen (1941) and classified according to the method of Bell (1940), Grade 1 being scanty and Grade 3 frequent.

Case 1 (Figs. 2 and 3).—Both kidneys were enlarged (combined weight 450 g.). The capsules stripped easily, leaving

finely granular surface. The cortices were narrow and the small renal vessels thickened. *Histology*:—"Foci of glomerulosclerosis alternate with areas in which there is proliferative glomerulitis. Capsular adhesions are numerous. The glomerular capillaries show hyaline thickening. The collecting tubules contain hyaline casts. Arteriosclerosis and hyaline arteriolosclerosis are prominent. Lesions of Kimmelstiel–Wilson type (K.W. lesions), Grade 1. This is a case of subacute nephritis (associated with nephrotic oedema) probably occurring in a nephrosclerotic kidney."

Case 3.—The kidneys were small, with granular surfaces. The cortices were narrow. *Histology*:—"There is severe glomerulosclerosis, much of which is recent, resembling a glomerulonecrosis in the process of hyalinization. Arteriosclerosis and hyaline arteriolosclerosis are severe. Pyelonephritis is also present. K.W. lesions, Grade 1. This is the scarred kidney of a chronic nephritis."

Case 5 (Figs. 4 and 5).—The kidneys were enlarged (combined weight 530 g.). The cortices were pale, the medullae congested. The capsules stripped readily. *Histology*:—"There is a moderate degree of glomerulosclerosis. The surviving glomeruli show capsular adhesions and hyaline thickening of the capillaries. There is exudate in Bowman's spaces, partially organized in some glomeruli. The collecting tubules contain hyaline casts. Arteriosclerosis and hyaline arteriolosclerosis are prominent. K.W. lesions, Grade 3. This is a case of subacute nephritis (associated with nephritic oedema) which has possibly occurred in a nephrosclerotic kidney."

Case 6.—The kidneys were of normal size. The capsules stripped easily. There was no abnormality of renal architecture. *Histology*:—"There is slight focal glomerular hyalinization. Arteriosclerosis is slight, arteriolosclerosis is of moderate degree. K.W. lesions, Grade 2. This is a nephrosclerosis of trivial degree."

Case 12.—The kidneys were reduced in size and the capsules were adherent. The surfaces were granular. *Histology*:—"There is gross glomerulosclerosis, many glomeruli being only recently hyalinized. Interstitial fibrosis, arteriosclerosis, and hyaline arteriolosclerosis are all severe. There is a concomitant pyelonephritis. K.W. lesions, Grade 3. This is a severe nephrosclerosis."

Case 13 (Fig. 7.)—Both kidneys were enlarged (combined weight 420 g.). The cortices were wide and pale. The medullae were congested. The capsules stripped easily. *Histology*:—"The glomerular capillaries are thick, hyaline, and patent. There are frequent capsular adhesions. There is no glomerulosclerosis, and arteriosclerosis and arteriolosclerosis are both insignificant. The collecting tubules contain hyaline casts. K.W. lesions absent. This is a subacute nephritis (associated with nephrotic oedema)—histologically of the 'nephrosis' pattern."

Case 23.—There was bilateral hydronephrosis, and abscesses were noted in the medulla of the left kidney. *Histology*:—"Left kidney—pyelonephritis is marked. There is slight glomerular hyalinization and arteriosclerosis. Hyaline arteriolosclerosis is severe. K.W. lesions, Grade 1. This is a severe pyelonephritis."

Discussion

During the past decade increasing attention has been drawn to renal failure as a later complication in diabetes. The earlier publications on the subject were largely concerned with observations in post-mortem material of hyaline degenerative changes in the glomeruli of the kidney, to which Kimmelstiel and Wilson (1936) assigned the term "intercapillary glomerulosclerosis." With wider recognition of this condition, attention turned naturally to the clinical manifestations and their correlation with the pathological changes. Newburger and Peters (1939) described four cases showing diabetes, albuminuria, oedema, nitrogen retention, and retinopathy in which the clinical history was known and the typical hyalinization of renal glomeruli was found at necropsy. They also described five other cases, clinically similar, but without pathological confirmation.

Porter and Walker (1941) analysed the clinical and laboratory features of eight cases of intercapillary glomerulosclerosis where the diagnosis was verified in six instances. Albuminuria was severe, blood pressure usually over 200, blood proteins much reduced, oedema of significant degree; and anaemia, nitrogen retention, and retinal haemorrhages were prominent in this group. They suggested that the renal changes represented an instance of a predilective degenerative process in diabetes culminating in the syndrome described. Herbut (1941) reviewed 2,000 necropsies and found nine cases fulfilling all the requirements described and showing glomerular lesions. Albuminuria in these cases varied in amount in direct relation to the degree of oedema, while the occurrence of casts in the urine was unrelated to the presence of glomerular hyalinization. Siegal and Allen (1941) studied 105 diabetic necropsies and correlated the history of hypertension with the presence of glomerulosclerosis. In 60 cases without hypertension glomerulosclerosis occurred 12 times, in 27 with hypertension the lesion was found nine times, and in 18 with the complete renal syndrome glomerulosclerosis was present in 14.

Up to this point it would seem that the authors quoted tended to consider that intercapillary glomerulosclerosis was the cause of renal failure.

Horn and Smetana (1942) pointed out that, although glomerulosclerosis in its more advanced state was seen only in cases of diabetes, it was not of necessity associated with a particular clinical syndrome. Laipply and his co-authors (1944) studied the necropsy reports and clinical notes of 124 diabetic patients and recognized areas of glomerular hyalinization in 79 instances. In general the lesion was relative to the duration of diabetes in its occurrence and degree. Although in some cases hyaline degeneration was of less marked degree and although 64 patients showed albuminuria, the nephrotic syndrome occurred in only five of this series. This would cast some doubt upon the conception that glomerular hyaline degeneration is of prime aetiological significance in the pathology of renal failure in these conditions.

A new point of view was adopted by Bell (1946), who found that glomerulosclerosis was well correlated with arteriosclerosis. In 189 necropsies on patients with diabetes but without arteriosclerosis no glomerular lesions were found. In 148 diabetic cases with arteriosclerosis 67% showed hyaline glomerular lesions. He concluded that in most instances the degree of hyalinization was proportional to the severity of the arteriosclerotic changes.

It is obvious from the conclusions of previous authors that considerable difficulty arises in attempting to correlate clinical signs with pathological findings in this condition.

From the evidence presented in this paper it seems quite clear that, apart from surgical lesions of the renal tract, at least four types of renal failure may occur in the diabetic. The series in Group 1 corresponds closely to most of the material previously described. So far as post-mortem evidence goes in this group there exist in each case examined widespread pathological changes in the kidney, other than glomerulosclerosis of this type, which might result in uraemia. This leads us to conclude that diabetic glomerulosclerosis is in itself incidental and is not the primary cause of renal failure.

Cases in Group 3 show the same clinical picture but with this important difference, that widespread vascular changes and diabetes occur practically simultaneously. Owing to the absence of post-mortem proof it is impossible to say whether the typical pathological renal changes are in fact present. If further evidence shows that glomerular

hyaline degeneration is present in these cases—as is probable—it would seem that this degenerative change is not due to the diabetes itself but to associated vascular lesions. In any case we are of the opinion that widespread arterial degeneration can produce the whole clinical picture within a short space of time.

With regard to Group 2, where incidental oedematous nephritis occurred in diabetes, the differential diagnosis is practically impossible during life. The clinical picture is the same, with the exception of occurrence earlier in life and perhaps the absence of retinal haemorrhage.

Prognosis.—The onset of albuminuria, apart from that associated with a precomatose state in diabetic patients, is usually of serious import and must be taken as a warning of impending renal complications. When retinitis and oedema occur the outlook is bad, and within two years death usually supervenes from uraemia, cardiac failure, or a combination of both. It is doubtful whether, in the present state of knowledge, any steps can be taken to defer these changes or to deal effectively with them when they occur.

Summary

Twenty-four cases of renal failure occurring in diabetic patients are described.

Classification shows four groups, including those associated with the Kimmelstiel–Wilson lesion.

Pathological details and photomicrographs illustrate the paper.

We are indebted to Mr. Norman Mowat for preparing the composite photomicrographs and to Mr. George Cheyne for technical help.

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DIABETIC COMA

BY

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From Jan. 1, 1940, to Jan. 1, 1946, Root treated 188 cases of diabetic coma in the New England Deaconess Hospital, with 6 deaths; and from Jan. 1, 1946, to Jan. 1, 1948, he treated 55 cases with no deaths. He has published a very full description of his methods of treatment (Root, 1945). My authority for the recent statistics is a personal communication from him. Few physicians or clinics have published their death rate in diabetic coma, and no recorded results are so good as this.

My essay in discipleship is prompted by the wish to make this line of treatment more widely known, for it has received sadly little attention from writers of textbooks in Europe, and some of the textbooks that are deservedly popular in this country advocate methods which include those very sins of commission and omission which Root has shown to be responsible for failure to save the more severe cases of coma. The chief sin of omission is not to appreciate the urgent need for large doses of insulin and the fact that insulin-resistance increases as the condition progresses. The chief sins of commission are the early administration of glucose and the use of the oral route for the administration of fluids.

This paper is based on bitter personal experience, for I have made many mistakes myself, and have learnt what happens when sufficient insulin is not given soon enough, when gastric aspiration is omitted or fluids are given by mouth, and when glucose-saline is given intravenously instead of simple normal saline.

Undoubtedly much of the credit for the good results of Root and his colleagues must be given to their personal skill and to the 24-hour laboratory service maintained in their hospital. But even the worst cases can be saved by physicians of less experience and in the absence of blood analysis. Root (1945) states: "No plan of treatment based on mathematical calculations of the blood sugar and carbon dioxide will take the place of constant bedside observation of the patient and adjustment of treatment to the patient's changing condition."

Nomenclature and Diagnosis

The accepted meaning of the word "coma" is a state in which the patient does not respond to any external stimulus. In this sense of the word the term "diabetic coma" is a misnomer, for it is only very rarely that the patient when first seen is in a state of true coma; usually the mental state is one of mild, moderate, or severe confusion with marked drowsiness.

The term diabetic coma is in fact by general agreement applied to severe *rapidly progressive* diabetic ketosis, and its diagnostic features are increasing drowsiness and confusion (ending eventually in true coma) with increasing hyperpnoea, dilatation of the stomach, and eventually circulatory failure due to electrolyte and water depletion. The biochemical findings are characteristic. It is readily induced even in the controlled diabetic by acute infections or alimentary tract disturbances. It is not so much a complication of diabetes as the end-stage of diabetes, and the treatment of coma is the treatment of diabetes—namely, insulin.

The condition is easy to recognize, a mistake being in fact almost impossible. One essential feature which distinguishes it from other causes of coma in diabetics is that in diabetic coma "unconsciousness" does not supervene till after a progressive and characteristic illness lasting as a rule several days. The diabetic who is found "unconscious" without any preliminary illness may be a case of hypoglycaemia or he may have had a stroke, but he is certainly not a case of diabetic coma.

Summary of Treatment

In most cases it is possible to bring about a striking improvement in from three to six hours, and during this period constant hard work at the bedside is necessary. The only factor in bringing about this improvement is insulin. Two other measures are important—gastric aspiration and the intravenous administration of normal saline.

The chief point in treatment is to ensure, even at the risk of giving more than may be needed, that the patient gets enough insulin within the first three hours. Of course in many cases some infective process is present and must be treated too.

Insulin Dosage

There are four points of fundamental importance. The first is that it is the insulin which cures diabetic coma; though other measures are necessary they are not curative. The second point is that insulin resistance increases so long

as the coma remains inadequately treated; the longer the delay in administering an adequate dose the greater the dose required to cure the patient. The third point is one which is familiar to all physicians who treat diabetic coma, but is not sufficiently emphasized by textbooks. The beneficial effect of an *adequate* dose of insulin is clinically manifest as a rule in less than 15 minutes; if a single dose of insulin fails to produce an obvious improvement within about 15 minutes it may be inferred that the dose was grossly inadequate. The fourth point is also one which has not been emphasized strongly enough—that, if what may later prove to be an unnecessarily large dose be given, a lapse into hypoglycaemia is not to be feared until after the clinical improvement that is bound to follow a more than adequate dose has taken place.

The required dose varies greatly. In general, the longer the patient has been ill and the graver his state the higher the required dose, but it is impossible to know in advance how much will in fact be required: one gives repeated doses and watches the effect. In an early case—that is, when the patient can give a clear account of himself—start with 100 units, and if there is no obvious improvement in half an hour give 100 units every half-hour until an improvement is obvious. Even in early cases a single dose of 100 units is usually not enough. If the patient is already drowsy and confused give the same initial dose of 100 units, but do not wait longer than a quarter of an hour before giving the second 100 units, for in a mentally confused patient the early good effect of an effective dose is very obvious. If the patient is inaccessible ("unconscious") start with 500 units, and be prepared to give more if no improvement is seen at the end of half an hour. When the patient is a child a lower scale of dosage may be adopted, and very often hitherto untreated diabetics in coma need less insulin than long-established insulin-treated cases.

If at any stage a striking clinical improvement has occurred and steady progress is maintained, no further insulin need be given, but the moment any suspicion arises that the improvement is not continuing more insulin must be given. If a clinical relapse occurs—that is, if the patient after a short improvement tends to revert to his original drowsiness—*very much more* insulin must be given.

If at the end of the first hour a very obvious improvement has not been produced it must be assumed that the dose of insulin so far given was not merely inadequate but grossly inadequate. It must be remembered that, although some severe cases recover on a few hundred units, dosages of about 1,000 units have sometimes to be given, and even 2,000 units have occasionally been required. Very large doses are particularly likely to be necessary for patients who have before admission been given glucose accompanied by insufficient insulin.

If no improvement has occurred by the end of the first hour doses of 100 units should be given as often as every ten minutes till improvement begins. The chief and most easily detected early signs of improvement are in the mental state and the hyperpnoea.

The less experienced a physician is in the treatment of diabetic coma the more generous should his dosage of insulin be; he must start treatment with the resolution that, whatever happens, he will not allow his patient to die from underdosage. A steadily falling blood sugar is a good indication that the dose so far given is adequate, and a physician who has to treat diabetic coma without blood-sugar estimations should make a point of erring on the generous side with his dosage. An even more trustworthy sign of adequacy of dosage is a steady mental improvement and diminution of hyperpnoea, but the less experienced physician may find it difficult to be sure that the expected improvement has started; if he is in doubt he should play for safety by giving more insulin, and thus he may expect to find later that he has given much more than was really needed.

So when diabetic coma is treated without blood-sugar control or by relatively inexperienced physicians some cases of hypoglycaemia may be expected to occur, but hypoglycaemia is a minor complication and very easy to deal with. Usually it does not occur until the patient is able to take food by the mouth, but in any case it is easily corrected by an ampoule of concentrated glucose solution intravenously. So far as I know there is no record of a patient ever having passed from diabetic coma into a fatal hypoglycaemic attack.

At the end of three hours there should be marked improvement. The hyperpnoea should have stopped, the blood-sugar should have fallen to near normal, and in many cases the urine will be sugar-free. The pulse rate will nearly always still be rapid. In some cases there will be very much less acetone in the urine, but the rate of improvement in Rothera's test is variable. If the urine was originally copious and pale it should have become less copious and more concentrated. If the urine was scanty or absent (as in extreme cases with grave circulatory failure) the administration of saline should have begun to produce a normal urinary secretion. If the patient is unable to pass urine one must never hesitate about catheterizing at hourly intervals in order to obtain a specimen.

If at the end of the first three hours a striking change for the better has not taken place the sands are running out, and the dosage of insulin must be condemned as very grossly inadequate and very much more be given.

In nearly every case at the end of the first six hours the patient is ready to eat and drink and is asserting his improvement with delight. In the young patient everything should now go smoothly, provided that a watch is kept for hypoglycaemia. In elderly or debilitated patients difficulties in the restoration of the water and electrolyte content of the body fluids may arise.

Relapse into diabetic coma is very rare indeed, but the dosage of insulin required during the few days after recovery is very variable. Many cases, after being sugar-free and almost acetone-free, soon develop glycosuria and slight ketonuria again and need large doses for the next few days, but others may not need any insulin at all for twelve or twenty-four hours after their recovery.

Gastric Aspiration

In almost every case of diabetic coma admitted to hospital the stomach is dilated, and unless this is dealt with the physician will lose some of his cases no matter how skilful his treatment in other respects may be. In many cases the condition gives rise to abdominal pain, but in others there is no complaint of pain at all. Examination of the abdominal wall does not as a rule give any hint of the presence of this dilatation.

As soon as the initial dose of insulin has been given a stomach-tube should be passed no matter how strongly the patient may object. Usually at least a pint of contents can be aspirated, and in all cases of severe coma they are black; in the less advanced cases they are brown or pink, but sometimes at an early stage they are not tinged with blood at all.

When gastric aspiration is omitted the following sequence of events may occur. Improvement on insulin and intravenous saline takes place and the patient seems to be on the

road to recovery. Then, as his mental state improves, just as in a patient recovering from an anaesthetic, he becomes restless, vomits a few ounces of black or coffee-coloured fluid, and within a few minutes marked dyspnoea with numerous rales sets in, the pulse becomes quick and feeble, and the patient dies in cyanosis. Post-mortem examination shows gastric contents in the respiratory passages.

Unless the patient is mistakenly allowed to drink before he has recovered it is not usually necessary to aspirate the gastric contents a second time, but a second aspiration is occasionally called for. A return of abdominal pain or a rising pulse rate should suggest the need for a second aspiration.

It should be remembered that the disturbance of the alimentary tract is not confined to the stomach. The intestine is often incapable of absorbing a rectal drip, and a rectal saline may be retained in the bowel for some hours before being returned.

Saline

Almost every case of moderately severe diabetic coma needs (if an adult) from 2 to 4 litres of normal saline in the first few hours. If the blood pressure has fallen to a dangerously low level 2 litres given quickly will as a rule restore it, but much more may be needed. In rare cases with complete anuria even larger volumes have been given with success. Root emphasizes that in such cases intravenous saline should be given until urinary excretion begins.

It is not easy to know which cases will need intravenous saline and which will recover without it. Except in cases of marked circulatory collapse it is not an urgent matter, but once the patient has reached hospital it is wise to give it if the case is of even moderate severity. The needle used should be of a bore large enough to allow a rapid flow, but in cases with circulatory failure it may be necessary to cut down a vein. Another difficulty sometimes met with is vein spasm. In such cases a pump of the rotating cam type which milks the fluid down the tube can be used to start the flow; once spasm has been overcome it is no longer needed. In gravely collapsed patients subcutaneous saline should be started at once in order that no time shall be lost while search for a vein is being made.

The rate of flow should be fast enough to deliver the initial 2 litres in about an hour. In some cases it may be possible to stop then, but as a rule it is safer to leave the needle in for a few more hours and continue to administer at least enough saline to make good the continuing urinary loss until clear clinical signs of recovery appear. There is no risk of overloading the circulation by the initial 2 litres, but in elderly diabetics with myocardial inadequacy and potential left-ventricle failure there is a grave risk of delivering fluid too rapidly after the initial extreme sodium and water depletion has been corrected. In children the rate of flow must be much slower than in adults.

Root's statistics strongly support his claim that normal saline is the only intravenous injection needed in diabetic coma. Other authors have asserted that alkalinizing solutions are necessary or that plasma should be used. Any physician who has seen elderly diabetics pass the first critical six hours and become sugar-free and ketone-free only to die a few days later from circulatory failure must worry, as I have done, about the adequacy of his treatment. But, in view of the very large volume of saline given by Root to some of his cases with ultimate success, the probability is that when others fail to restore the blood volume it is the physician's judgment which is at fault and not the composition of the solution used.

Recently it has been pointed out that recovery from diabetic coma is followed by a fall in blood potassium and blood phosphate levels, and it has been suggested that this fall may be the cause of deaths occurring some hours or days after the cure of the ketosis.

There is, in effect, definite evidence that a serious potassium depletion may occur in some cases, and the clinical picture appears to be recognizable. If marked asthenia follows an apparent clinical recovery the possibility should be suspected and potassium chloride (or some other potassium salt) given in 0.5-g. doses every half-hour. Recovery has been recorded as a result of this line of treatment (Holler, 1946; Nicholson and Branning, 1947).

Glucose

For some years Root and his colleagues have preached against the administration of glucose in diabetic coma. Their arguments have been so widely accepted, and they have made so many converts among those who formerly administered glucose as a routine, that it must be admitted that they are right.

There is of course no danger in administering glucose if *after* a successful treatment by insulin a low blood sugar or sugar-free urine suggests that hypoglycaemia is to be expected, but glucose given at an earlier stage is dangerous. Admittedly many cases of coma which have been given glucose and sufficient insulin have recovered, but nevertheless glucose given at an early stage exposes the patient to special added risks which may just turn the scale against him.

Glucose-saline must not be given instead of normal saline by the intravenous route. One litre of glucose-saline contains 50 g. of glucose—that is, enough glucose to raise the already very high blood sugar to well over 1% if the injection is given at the usual rate. As a result the urinary excretion of water and of glucose tends to rise rapidly, and the degree of both water and sodium depletion may be increased. Almost as serious is another result—that the physician is deprived of two very valuable aids to his assessment of progress, the falling blood sugar and the gradual return of the volume and colour of the urine to normal. Finally it has been shown that continued administration of glucose may in the end favour the onset of anuria.

The notion that glucose is a part of the treatment of coma entails another danger—that the physician may order his patient to drink glucose solution and thus increase the degree of dilatation of the stomach. In my experience this is a very common mistake, and the ill effects are very obvious.

The General Practitioner and Coma

Few of us can hope to be in a position to claim, like Root, that we have cured 55 consecutive cases out of 55, but all of us should be able to cure every moderately early case. The following suggestions should facilitate early administration of insulin, the point above all others which is decisive.

Every patient on one of the slow insulins should stock a couple of bottles of plain insulin for his doctor's use in emergencies, for the doctor called to a diabetic's house may not think it necessary to pack insulin in his bag.

Every hospital which is prepared to treat diabetic coma should make it known to all local practitioners and to all its diabetic patients that an acutely ill diabetic is always admitted without even telephone notice, whether it has a vacant bed or not. The relatives of all diabetic patients should know that when a diabetic takes to his bed or seems in any way unwell he should be shifted at once to hospital.

The doctor called to a case of coma should always give at least 100 units at once before even ordering the ambulance. If the patient is inaccessible ("unconscious") he should give

500 units, but in such patients he should aspirate the gastric contents, as extreme gastric dilatation is sure to be present and the patient may improve enough to vomit in the ambulance and inspire his vomit.

Any physician who has ever treated diabetic coma in the patient's own home must agree that, though of course one may succeed, the difficulties are so great and the unpleasant surprises so numerous that home treatment should rarely if ever be undertaken.

Summary

The line of treatment of diabetic coma given by Root and his colleagues in Boston is advocated.

The essential point is large insulin dosage at an early stage. Physicians less experienced than Root and working in less well-equipped clinics should deliberately err on the side of giving larger doses than the experts, for there is no danger in giving too much and every danger in giving too little.

Gastric aspiration must be carried out as routine in every case and nothing be given by the mouth during the critical first few hours.

Intravenous saline is needed by many cases and by all the severe cases, sometimes in very large quantities. The syndrome of potassium depletion must be rare, but the possibility should be kept in mind.

Glucose must not be given by any route until clinical recovery has been achieved, but after this it may safely be given to prevent hypoglycaemic attacks.

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TREATMENT OF CHRONIC VARICOSE ULCERS BY LUMBAR SYMPATHECTOMY

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Chronic varicose ulcers heal slowly, relapse easily, and remain a source of constant annoyance to those they affect. Some tend to heal in summer, some with or in spite of the application of lotio rubra, scarlet red, sulphonamide, or penicillin powders, some following protection by Unna's paste or "elastoplast"; some respond to sclerosing treatment of the causative veins or after Trendelenburg's operation with high and low ties, some even requiring skin-grafting. Yet many, even after this gamut of medical and surgical treatment, remain a chronic antisocial disability to their unfortunate owners.

Case 1

A man aged 49 was admitted to Southend General Hospital on Sept. 9, 1946, with a history of varicose veins in his left leg associated with a large left varicose ulcer for 27 years. He had had a flesh gunshot wound in this leg below the knee in 1917, without peripheral nerve injury. In 1937 a left saphena varix had been excised. In spite of a wide range of local treatment the ulcer never healed even after lengthy periods of rest in bed. The Wassermann reaction was negative.

On June 8, 1946, two varices were excised from the left femoral triangle and several others from the left popliteal fossa. On reporting to the out-patient department on Aug. 17 he complained of the ulcer, which was larger than before, together with pain and swelling in the left leg. There was thrombophlebitis of the branches of the saphena magna vein. On Sept. 9, there being no improvement, he was admitted. The ulcer, situated just above the medial malleolus, measured 5 by 3 cm.

The leg was elevated and the ulcer covered with tulle gras. Sulphadiazine, 14 g., was given orally for two days. The swelling rapidly subsided and the phlebitis regressed, but the ulcer remained the same. Its cure became the next problem, for it greatly handicapped him in his work as a painter.

On examining him afresh what impressed us most was the coldness of the limb, together with its cyanotic appearance compared with his normal right leg. The cutaneous circulation was obviously poor. It occurred to us that, if only the blood supply to the skin could be improved, healing of the ulcer might occur spontaneously. The ulcer maintained its existence as a result of the state of stagnant anoxia which surrounded it. Almost it was an "anoxic ulcer." Arguing on the analogy that head wounds, with a rich blood supply, heal quickly and remain healed, we decided to try the effect of a lumbar paravertebral block of the sympathetic nervous system in improving the cutaneous circulation. Following the infiltration of 100 ml. of 0.5% procaine solution along the left side of the lumbar vertebral column there was a remarkable improvement in the colour and warmth of the limb which persisted for 24 hours. As we did not have a skin thermometer the exact temperature rise could not be measured, but the patient had no doubt at all that his left leg was warmer.

Operation.—After considerable thought, in view of the attendant risks of any operation, we suggested that his ulcer might be "cured" by left lumbar sympathectomy. So far as we were aware at that time, this had not been tried for varicose ulcer before. It was an experiment, and we could not guarantee the result. The patient accepted. On Sept. 27 left lumbar ganglionectomy was successfully performed, the second, third, and fourth lumbar ganglia being removed. In the left leg there was an immediate rise in temperature, which has persisted.

Fourteen days after operation the ulcer was healed for the first time in 27 years. When seen on June 7, 1947, he was extremely fit and well; the skin was healthy, the scar soft. He said he felt ten years younger. On Sept. 11 his leg was still healed. No pulse difference was detected in the femoral, anterior, or posterior tibial vessels of the right and left legs. To prevent swelling he wears a below-knee elastic stocking. On May 13, 1948, he reported that the ulcer was still soundly healed.

Case 2

A married woman aged 57 was admitted on Dec. 31, 1946, with a left varicose ulcer which had persisted for 15 years, it being the result of a left "white leg." Three years after onset of the ulcer she developed "phlebitis" in her left leg following injection treatment for varicose veins. On Nov. 13, 1945, one vein was tied below the left knee, with slight improvement in the ulcer and surrounding weeping eczema.

Physical examination showed a fit corpulent woman. On the medial surface of the left leg were two chronic ulcers, each 4 by 2.5 cm., surrounded by a large area of weeping eczema and pigmentation extending half-way up the leg, which was cold and blue. There were no large varicose veins now. Her Wassermann and Kahn reactions were negative, and her urine was normal. She was finding the leg an increasing source of annoyance. After a left paravertebral block there was marked vasodilatation.

On Jan. 3, 1947, a left lumbar sympathectomy was performed. By Jan. 16 the ulcer had healed for the first time in 15 years. The patient was discharged with instructions to apply calamine lotion to the varicose eczema and to keep the skin protected with a crepe bandage. When seen on June 7 her ulcer was soundly healed and the skin healthy. She said that eczema still occasionally bothered her. When seen on Sept. 11 the eczema, which was some distance from the healed ulcer, was weeping. The ulcer had healed leaving a thick scar, which later might well be excised and skin-grafted. No elastic support had been worn, but one was on order. On May 18, 1948,

Table of Results

Case No.	Sex	Age	Duration of Ulcer	Past Surgical Treatment	Size of Ulcer	Para-vertebral Block	Lumbar Ganglion-ectomy	Healed	Follow-up
1	M	49	27 years	1937: left saphena varix excised. 8/6/46: 2 varices in left femoral triangle excised. Deep thrombosis	5 × 3 cm.	Good response	27/9/46: L. 2–4	11/10/46	13/5/48: healed. Wearing elastic stocking
2	F	57	15 years	13/11/45: one varix tied below knee	4 × 2.5 cm.	Good response	3/1/47: L. 2–4	16/1/47	11/9/47: ulcer healed. Eczema persisted 18/5/48: eczema healed. Ulcer broken down. Leg still warm. Wearing elastic stocking
3	F	71	39 years	17/1/46: left Trendelenburg	4 × 1·5 cm.	Good response	21/2/47: L. 2–4	14/3/47	18/5/48: healed. Wearing elastic stocking
4	F	56	16 years	23/10/46: bilateral Trendelenburg	7 × 4 cm.	Good response	22/5/47: L. 2–4	5/6/47	11/9/47: ulcer healed. Some eczema 8/5/48: ulcer healed and skin dry. Wearing elastic stocking

she wrote that the left leg was still warmer than the right; the eczema was healed, but the ulcer had broken down again, and she was now wearing an elastic stocking.

Case 3

A married woman aged 71 was admitted as an "emergency" on Feb. 18, 1947, suffering from the recent onset of a patch of superficial dry gangrene on the ball of her left foot. She had suffered from bilateral varicose veins and a left chronic varicose ulcer for 39 years. On Jan. 17, 1946, a left Trendelenburg operation, with low ties, was performed, with no improvement. On Feb. 12, 1947, she complained of the chronicity of the ulcer and of "something wrong" on the sole of her foot which made her limp. This was a source of great inconvenience, as she kept house for an invalid sister aged 76.

On examination the left leg was cold and blue, with a deep chronic ulcer 4 by 1.5 cm. extending down to the left medial malleolus. There was pronounced scarring of the surrounding tissue with resulting acquired pes cavus. On the ball of the great toe was a patch of superficial dry gangrene 2.5 cm. in diameter. The left posterior tibial pulse under scar tissue was impalpable, the other pulses being present in the right and left legs. The legs were otherwise normal. The Wassermann and Kahn reactions were negative. The haemoglobin was 89%, the blood urea 28 mg. per 100 ml., and blood sugar 81 mg. per 100 ml. Her urine was normal. A radiograph of her legs showed no vascular calcification.

As there was good response to paravertebral block, on Feb. 21, 1947, left lumbar ganglionectomy was performed. There was a dramatic response, the lesion of the sole healing in two weeks. Simultaneously the varicose ulcer improved, being healed in three weeks from the time of operation—the first time in 39 years. When seen on June 7 both areas were soundly healed and the left leg was still warmer than the right. There was now no difficulty in walking. On Sept. 11 her leg and sole were still healed. She wears an elastic stocking, without which the left leg swells. On May 18, 1948, she wrote that her leg was still healed.

Case 4

A married woman aged 56 had suffered from bilateral varicose veins for 19 years and a large varicose ulcer with extensive surrounding eczema for 16 years. There was no history of "white leg." The skin had been unsuccessfully treated with many local applications. On Oct. 23, 1946, a bilateral Trendelenburg operation was performed without healing of the ulcer, which became covered with hard crusts. The eczema continued to weep.

On examination she was seen to be a large, heavily built woman. The right leg was soundly healed, no varicose veins being obvious. The lower half of the left leg was covered with a weeping varicose eczema. Under thick crusts above the medial malleolus was an unhealed ulcerating area approximately 7 by 4 cm. Though the leg was distally cold and blue the pulses were normal. There was a good cutaneous response to paravertebral block. Meanwhile the skin was treated with eusol compresses.

On May 22 a left lumbar ganglionectomy was performed. As a result the eczema dried and the patient was discharged on June 5 with the ulcer healed.

When seen on Sept. 11 the ulcer was still healed, but superficial eczema remained. At times it wept, at times it was dry. There was no swelling of the leg. The pulses on her leg appeared normal, and there was no recurrence of the varicose veins. She had an elastic support on order. On May 8, 1948, she wrote that the leg had been dry since October, 1947. She still wore an elastic stocking.

Discussion

As Richter (1941) rightly says, varicose ulcers can unquestionably be cured by many methods; and as sure as a sufferer has an ulcer, so his doctor has his own remedy. It is a question of *chacun à son goût*. Essentially, however, one treats the cause, which in the above case was the result of long-treated varicose veins where, though the veins had disappeared after a combination of ligation and thrombophlebitis, the cold cyanotic limb and ulcer remained. Infection played a secondary part in the maintenance of the ulcer. Only because all non-operative and all available operative procedures had failed was sympathectomy considered. In Case 3 an early gangrene of the limb was the reason for operation. The varicose ulcer which simultaneously healed was an interesting and instructive incident.

In his masterly review of the aetiology and treatment of varicose ulcers of the leg Homans (1917) divided ulcers into three groups: (1) ulcers of surface varix, (2) ulcers of surface varix complicated by varicosity of the perforating veins of non-inflammatory origin, and (3) same as Group 2 but post-phlebitic in origin. Groups 1 and 2 differ little except that, whereas the ulcer of Group 1 is near the principal superficial veins of the leg, the ulcer of Group 2 not only rides upon the large veins but tends to appear in the region of the perforating veins. Ulcers of Group 3 are decidedly different. They arise on phlebitis following childbirth, fevers, and operations. The valves of the veins are permanently incompetent. After the inflammation there are changes in the leg, with induration of fat and scarring of deep fascia, thus crippling the local lymphatic system, with resulting oedema. The ulcers tend to be rapid in onset, particularly chronic, bear no relation to visible veins, and have little or no tendency to heal even with rest in bed. We feel that Cases 1 and 2 finally belonged to Group 3, while Cases 3 and 4 were probably Group 2. In cases such as these Homans ligated the varicose veins first, and if no healing occurred he excised the ulcer and skin-grafted the raw area.

Some workers have used lumbar sympathectomy as a means of curing chronic varicose ulcers. The South Americans were early in the field. Gordon (1940) condemns its use, having had ten cases each of which showed initial prompt healing but nine of which recurred in less than one year. He favours excision of deep fascia of the leg together with a thick Thiersch graft if the overlying covering is poor.

Gravelle and O'Donnell (1946) in a review of 21 cases, of which six had stasis ulcers in contrast to arteriolar and traumatic ulcers, found all the results were "good"—the longest follow-up period being 18 months.

Adams (1942) writes: "There are two types of varicose ulcers that are particularly benefited by lumbar sympathectomy in addition to indicated therapy of the forms already enumerated. One is seen in the constantly moist, sweating leg in which fungous infection is uncontrollable by medical measures. Sympathectomy abolishes the sudomotor activity, makes the skin dry and warm, allows fungous infection to be controlled and healing to be maintained. The other type is characterized by multiple punched-out, circular ulcers on brawny, cyanotic legs secondary to deep obliterative thrombophlebitis. Although peripheral pulsations may be present and of good quality, a glance at the leg is convincing evidence that the tissue circulation is inadequate to meet its metabolic needs, and hence the ulceration has occurred. Venospasm, lymphatic blockage, and postural stasis all may be contributing factors. The important practical fact, however, is that sympathectomy, by relaxing the spasm and improving the collateral circulation, will sometimes bring healing in this distressing group of cases that we otherwise have been forced to admit are incurable by any methods at our command."

The most arresting fact in our series was the rapidity with which the ulcers, present from 15 to 39 years, healed within three weeks and remained healed throughout two winters.

In choosing the method of treatment for recurrent varicose ulcer of the leg it is essential to consider the patient's economic status and the nature of his work. There is no doubt that many find a chronic ulcer a debilitating condition. Young people, especially men, can ill afford to continue losing time and efficiency. Every effort should be made to heal these ulcers quickly, and if sympathetic surgery is indicated it should be tried.

Homans observed that, even after the ulcers had apparently healed with skin-grafting, the grafts sometimes separated when the patient walked again. Cyanosis of the graft and oedema of the ankle were his danger signs. He therefore advised three weeks' post-operative rest in bed, with active and passive leg exercises besides massage, before the patient was allowed up.

Battle (1947), discussing the results of his series treated by skin-graft, likewise mentioned that several cases which at first appeared to have successful "takes" broke down soon after walking was recommenced, usually within six weeks of operation. Surely the answer to this failure is that skin-grafting, like tree-transplanting, requires suitable soil. If the ground is waterlogged and stagnant a tree transplanted there dies. So, too, did these grafts. We believe that with such patients the correct approach might well be first to improve the peripheral circulation by lumbar sympathectomy and then to graft the skin on a favourable "soil." We believe, too, that the wearing of an elastic bandage post-operatively to be very important. It protects the skin from trauma without and from oedema within.

One may well ask, Is such a condition really worthy of such attention and such treatment? The answer, we believe, is yes. If these already overtreated ulcers can be healed permanently by this method or by combining it with fascial excision and skin-grafting—and the answer, as with all "cures," still lies a lifetime down the years—then will be removed another source of chronic disability and loss of manpower from humanity. One thing, however, is certain—nothing is so profound as the heartfelt gratitude of three of these four people on being thus far released from the tedium of chronic discharging septic sores on their legs.

Summary and Conclusions

Varicose ulcers may fail to heal even after the entire gamut of usual medical and surgical treatment.

Four such patients, with ulcers present from 15 to 39 years, were found to have cold blue limbs which responded by cutaneous vasodilatation to lumbar paravertebral block.

After lumbar sympathectomy these ulcers healed within three weeks. In three cases they have remained healed.

The value of lumbar sympathectomy in providing an adequate circulation to assist healing is thus demonstrated and its use before skin-grafting suggested.

The importance of continuing to wear an elastic stocking after treatment to protect the skin from trauma from without and oedema from within is stressed.

We wish to thank Mr. Rodney Maingot for his encouragement in this work and for his permission to publish these case reports.

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Medical Memoranda

Twin Pregnancy with Acute Hydramnios Treated by Paracentesis Uteri

The following is a report of a case of acute hydramnios occurring in a twin pregnancy and resulting in the birth of one live twin and one foetus papyraceus after treatment by abdominal paracentesis uteri.

CASE REPORT

The patient, a multiparous gipsy aged 25, was admitted to hospital on May 18, 1947, on account of acute hydramnios. Her last menstrual period had begun on Nov. 13, 1946, but instead of being six months in size the uterus had the dimensions of a full-term pregnancy. There was a history of sudden abdominal enlargement with discomfort for the past few days, and of severe abdominal pain during the 24 hours preceding admission. The foetal heart sounds could not be heard, and parts were difficult to identify, although external ballottement was just possible. The patient was in considerable pain, requiring an injection of morphine a few hours after admission. The uterus, though distended, tense, and tender, was not "board-like" as in concealed ante-partum haemorrhage, and it was concluded that the excessive uterine enlargement was due to hydramnios. The temperature was normal (and remained so throughout the patient's stay in hospital), but the pulse rate varied from 90 to 130.

Further investigations revealed mild anaemia (Hb, 75%) and negative Wassermann and Kahn reactions. The blood group was B (III), Rh-positive; the blood pressure was 115/85. The urine contained a trace of albumin but no casts or blood cells, and was sterile on culture. Radiological examination revealed a twin pregnancy, with the infants probably of no more than 28 weeks' maturity, one presenting by the vertex and the other by the breech.

The first paracentesis uteri was performed on the day after admission, when 4 pints 16 oz. (2.73 litres) of clear liquor amnii was released. Subsequently the patient felt much more comfortable, with the pulse rate stationary at 92–96. A week later the procedure was repeated and 3 pints 2 oz. (1.76 litres) of liquor

was withdrawn. In a third aspiration, on June 1, a further 3 pints 15 oz. (2.13 litres) was drained, making a total of 11 pints 13 oz. (6.62 litres) removed in three weekly sessions. By that time the patient was very well and fit to be discharged from hospital. The foetal heart sounds could now be heard distinctly, although it was not possible to distinguish between two separate hearts.

During the remainder of the pregnancy the woman was seen regularly in the antenatal clinic. She remained in good health, and there was no recurrence of the hydramnios. It was, however, noticed (and confirmed by *x*-ray examination) that one foetus failed to grow while the other seemed to develop normally. Spontaneous delivery of uniovular twins occurred at full term on Aug. 22: the first was a living female child weighing 6 lb. 6 oz. (2.89 kg.) (vertex delivery) and the second a foetus papyraceus, 12 in. (30 cm.) long and weighing 11 oz. (312 g.) There was one large placenta, about a third of which was infarcted and had obviously not been functioning for some time. The living infant was perfectly healthy, and her progress, like her mother's, was uneventful, both being discharged from hospital on Sept. 1.

COMMENT

Puncture of the uterus through the abdominal wall in an effort to reduce the amount of liquor amnii without terminating pregnancy was first advocated by Schatz (1918) and carried out by Henkel (1919) and Wormser (1920). Textbooks of obstetrics hardly mention the method and generally give a poor prognosis for the foetus in acute hydramnios. DeLee (1943) states that "aspiration confers only temporary benefit," and Taussig (1927) is of a similar opinion. The procedure was advocated in this country by the late Mr. Carnac Rivett (1933), who referred to it as "a rational method of treating hydramnios, since in all cases sufficiently acute to demand interference any other line of treatment would result in a miscarriage or the birth of a barely viable child." He found, however, that even in acute hydramnios the liquor is not under pressure and has to be sucked out. This was certainly not my experience in the above case or in several others in which liquor always drained freely as soon as the cannula was inserted.

The above case resembles those reported by Lloyd (1943) and by Erskine (1944) in that one twin survived while the other died *in utero*. It is submitted that by no other method of treatment could a living mature infant have been obtained in the case described. It is uncertain which of the two gestation sacs was hydramniotic, but it is tempting to argue that the hydramnios failed to recur because of the death of the foetus in whose bag the liquor had previously accumulated. In some cases there is indeed a recurrence of the hydramnios, and it is this observation which has brought the method of abdominal aspiration into disrepute. There is, however, no objection to repeating the process, provided that *x*-ray examination has failed to show a foetal abnormality. If there is a malformation present, surgical induction of labour per vaginam is indicated, and paracentesis uteri can have no place in the management of such a case.

This report is published by courtesy of Mr. David Maxwell, under whose care the patient was admitted and who encouraged me to record the case.

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Intestinal Obstruction Caused by Faecalith

It is unusual for faecaliths to form in the small intestine. The size of the foreign object and the circumstances of its formation in the following case are worthy of record.

CASE REPORT

An ironworker aged 57 was admitted to the Royal Infirmary, Glasgow, on Jan. 22, 1947, complaining of lower abdominal pain of five hours' duration. The pain came on suddenly and was colicky in nature. It was felt mainly in the left iliac fossa, but periodically it passed to the epigastrium. There was no vomiting before admission and the bowels had moved that day. His history revealed no indication of disease apart from some digestive upset described as an "attack of the bile" occurring three years before and lasting three days. This was the only illness which had kept him off work in twenty years.

On examination he was thin and looked moderately ill. The tongue was clean and moist. The abdomen was somewhat full in the right iliac fossa and there was some guarding in the left upper abdomen. Tenderness was present over the whole lower abdomen. Rectal examination revealed no abnormality. Conservative treatment was instituted, with limitation of diet to fluids, and an enema was given. Next day he felt better, but he began to vomit in the late afternoon and the pain recurred with greater severity. Slight distension was noted over the left side of the abdomen. By the morning of Jan. 24, obstructive signs were becoming evident. Vomiting continued, he began to become dehydrated, and the severe colicky pain persisted.

FIG. 1.—The specimen after section, showing the core of faeces and the covering of soaps.

His abdomen was opened by a right gridiron incision on the 24th. A stony-hard mass was felt in the terminal ileum about 15 in. (37.5 cm.) from the ileocaecal valve. The mass could easily be milked up the bowel, which was distended above it. Enterotomy was performed some distance above the obstructed area and a triangular stone was removed measuring 2 in. (5 cm.) along the sides and 1 in. (2.5 cm.) in thickness (Fig. 1). A radiograph of the stone after removal (Fig. 2) showed a translucent core with a layer of opaque material round it. On section the calculus was found to have a soft centre of faeces surrounded by a layer of hard chalky material 3 mm. thick. Analysis showed the outer material to be calcium soaps. The patient made an uninterrupted recovery.

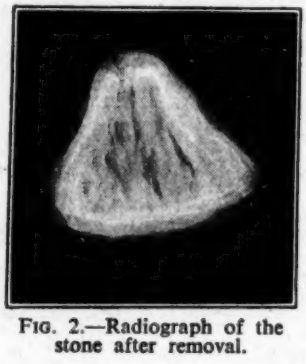

FIG. 2.—Radiograph of the stone after removal.

On Feb. 21 he returned for a barium examination of the intestinal tract. This showed multiple diverticula of the duodeno-jejunal region. In any of these the faecalith might have formed. No other faecaliths were noted.

COMMENT

It seems that this man had been developing a faecalith for some considerable time in a large diverticulum of the duodeno-jejunal region. It had caused no symptoms until, for some reason, it dislodged into the lumen of the intestine and passed along it to the comparatively narrow ileum. There it caused obstruction. I have been unable to trace in the literature any other case of this complication of diverticulosis in this region.

I am indebted to Mr. Donald Hay for the photographs.

ARCHIBALD L. GOODALL, M.D., F.R.C.S.Ed., F.R.F.P.S.G., D.P.H.

The Association for Hospital Services, which has now moved to larger accommodation at Tavistock House (South), Tavistock Square, London, W.C.1, has issued a pamphlet on its activities from 1943 to 1948 entitled *The Hospital Service Plan*. It includes a message from H.R.H. the Duke of Gloucester congratulating the Association on its expansion and wishing continued success. The Association runs a contributory scheme to help middle-class men and women pay for accommodation in hospital pay-beds or in private nursing-homes when they fall sick, and Dr. Russell Brain, chairman of the council, points out that the need for such a scheme will continue under the N.H.S. Sir Cecil Wakeley has recently joined the council.

Reviews

PENICILLIN FOR SYPHILIS

Penicillin in Syphilis. By Joseph Earle Moore, M.D. (Pp. 319; 57 figures. 27s. 6d.) Oxford: Blackwell Scientific Publications, Ltd. 1947.

This book may suitably be regarded as a supplement to *The Modern Treatment of Syphilis* by the same author, for he discusses the application of penicillin to, and its value in, all forms of syphilis. He considers in turn the chemistry, pharmacology, and toxicity of penicillin, its effect on experimental syphilis and its mode of action, then its use in the various stages and forms of syphilis with and without arsenic, bismuth, and fever. Very rightly he stresses the possible confusion caused by using the antibiotic in other conditions and the absolute necessity of a careful follow-up after penicillin therapy. This work bears the imprint of authority, for Earle Moore has probably treated more cases of syphilis with penicillin than almost anyone, and his figures are founded on vast numbers of patients treated on various schedules in numerous clinics in the U.S.A. The lists of references, suitably placed at the end of each chapter, are most useful and cover the period up to October, 1946. Much has happened since then, but, as he points out, if it were necessary to wait till finality had been reached the book would never have been written. The vast majority of the references naturally are to American authors; the names of Fleming and Florey merely receive passing notice.

Perhaps what will strike the reader most is the remarkable efficacy of penicillin in the treatment of the syphilitic pregnant woman and of early congenital syphilis. The original hopes of its effect in early acquired syphilis have been rather dashed by the number of relapses, yet it appears that it is still the fashion in the U.S.A. to rely on penicillin alone in early syphilis, except in relapsed cases, whereas in Great Britain the concurrent use of arsenic and bismuth was adopted some years ago both in civilian V.D. treatment centres and in the Services. Perhaps one of the most interesting features of this book is the account of the beneficial effect of penicillin in various comparatively rare conditions which the average syphilologist sees only occasionally, such as optic atrophy, iritis, and nephrosis, to mention only three, while the favourable effect of locally applied penicillin in interstitial keratitis will encourage those who often almost despair of obtaining any amelioration of an apparently intractable condition.

The question of the possible danger of Herxheimer reactions in certain conditions such as cardiovascular syphilis is well worth noting, and the careful physician will start treatment with very small doses such as 1,000 or even 500 units in these cases. It is good to hear, on such authority that penicillin resistance is little to be feared, but the effect of the antibiotic on serum reactions is somewhat disappointing. We note that, contrary to statements by some authorities in Great Britain, the author considers penicillin plus malaria to be distinctly more effective than penicillin alone in symptomatic neurosyphilis and in optic atrophy. The production of this book is excellent and does credit to both author and publishers. There are many figures and tables and a few photographs. The final chapter is on streptomycin, which appears to have little effect on rabbit syphilis.

T. E. OSMOND.

CHEST DISEASES

Diseases of the Chest: With Emphasis on X-ray Diagnosis. By Eli Rubin, M.D., F.A.C.P., F.C.C.P. The Principles of Surgical Treatment by Morris Rubin, B.A., M.D. (Pp. 685; 355 illustrations, with 24 plates in colour. 60s.) Philadelphia and London: W. B. Saunders Company. 1947.

The author's intention is to present the subject of chest diseases in this book so that it will serve both as a reference book for the physician and as a textbook, presumably for the post-graduate student. Throughout he especially emphasizes the radiological aspects of diagnosis. Since radiography can now be considered as an essential part of the routine investigation of intrathoracic disorders, this emphasis reflects current practice. The radiographic illustrations, of which there are many, are well reproduced, well chosen, and contribute to the understanding of the text.

The scope of the book is comprehensive. There is a useful section on the principles of surgical treatment in which the author sets forth the essentials for the physician without unnecessary reference to surgical technique. In certain passages a lack of balance is evident; for instance, in the necessarily brief discussion on the epidemiology of tuberculosis about one-quarter is on pulmonary calcification due to histoplasmosis. A useful bibliography is appended to each chapter; since the book is of American origin, it is perhaps not surprising that the references are chiefly to American publications. It may be doubted whether the 24 colour plates improve the book. These are reproductions of paintings of pathological specimens, often portrayed rather imaginatively in cross-sections of the complete thorax, together with black-and-white reproductions of corresponding radiographs and sometimes with drawings of histological appearances. They would seem more appropriate to a textbook for junior medical students or nurses than to one intended principally for graduates. On the whole, however, the author gives an adequate account of chest diseases, and we can recommend the book.

J. G. SCADDING.

GYNAECOLOGY

Operative Gynecology. By Richard W. Te Linde, M.D. (Pp. 751; 309 illustrations in black and white and 15 subjects in full colour on 9 plates. £5 10s.) London: J. B. Lippincott Company. 1947.

Te Linde's *Operative Gynecology*, first published in 1946, was reprinted in January, 1947, and most British gynaecologists will be pleased that the book has been dedicated to Edward Richardson. There are two columns to a page, as in the new De Lee–Greenhill editions. Most of the illustrations are clear and on the whole satisfactory, but they are not all of the high quality of those of Karl Hajek or of Tom Jones.

One cannot imagine Te Linde writing any textbook without introducing descriptions of pathology, and it is with a certain amount of amusement that we find a whole chapter on functional bleeding without any operative descriptions whatsoever. There are also a fair number of photomicrographs. Te Linde quite correctly points out in his introduction that gynaecological surgeons should have a full knowledge of pathology. The surgeons themselves may reply equally correctly that such information can be obtained from textbooks of gynaecological pathology. Similarly, the account of gonorrhoeal disease is more clinical than operative. On the other hand the chapter on the surgical management of abortion is an excellent innovation. The author discusses the operative management of sterility too superficially. His account of vaginal operations is relatively short, and the descriptions do not compare very favourably with those of Peham Amreich and Martius.

The book is essentially individualistic. It is informative and can be read easily. Any opinion that Te Linde expresses deserves the greatest respect, and his opinion of the merits of myomectomy is most instructive. The main criticism is that the book cannot be regarded as a condensed description of operative gynaecology. Nevertheless, it will be widely read and should offer an excellent background for advanced students.

WILFRED SHAW.

MEDICAL STATISTICS

Principles of Medical Statistics. By A. Bradford Hill, D.Sc., Ph.D. Fourth edition, revised and enlarged. (Pp. 252. 10s. 6d.) London: The Lancet Ltd. 1948.

A book on medical statistics which passed through three editions between 1937 and 1942, was reprinted in 1945 and again in 1946, and now appears in a fourth and revised edition must have qualities which make praise from a critic superfluous and blame futile. Prof. Bradford Hill set himself the task of explaining to a clinical reader the principles of statistical reasoning without boring or puzzling him with algebraical formulae, and he succeeded so well that other medical consumers, or at least users, of statistics begged to be helped. The author has added sections of more interest to workers in social and preventive medicine than to clinicians, but has done this so skilfully that the personal charm of the first edition has not been lost. The book is still primarily an introduction to arithmetic as a tool of logical reasoning, which is not a bad definition of statistical method.

The careful and witty exposition of common fallacies will please and instruct many readers who have no passion for sums. It is, in the reviewer's opinion, important that such a book should be widely read by members of our profession. He can well remember the time when most medical men and many biologists despised "mathematical" methods of handling their data: that time has passed; reverence has tended to replace contempt. From the point of view of the professional statistician this is a change for the better, but, as Sir Walter Scott said, all reforms bring a rateable proportion of evil. Forty years ago most doctors and medical laboratory workers were satisfied they could handle their data without any mathematical assistance. Now they are apt to think that only mathematical "experts" should handle them. It is true enough that sometimes expert help or criticism is desirable or even essential; it is not true at all that valuable statistical work, even work which makes a definite addition to the methodology of statistics, can be done *only* by a highly trained mathematician. Graunt, Farr, and Galton all made contributions to the methodology of statistics of immense value; not one of them, judged by the standard of his own age, was an expert mathematician.

If intelligent men without a natural aptitude for or special training in mathematics are frightened away from statistical work it will be bad for them and bad for statistics. Such a book as Prof. Hill's should, the reviewer thinks, give them courage, but not the spurious courage of the man who is brave because he does not know what the danger is.

MAJOR GREENWOOD.

ESTIMATION OF VITAMINS

The Biological Standardization of the Vitamins. By Katharine H. Coward, D.Sc. Second edition. (Pp. 224; 38 figures. 16s.) London: Baillière, Tindall and Cox. 1947.

The title of this useful book may possibly convey the impression that it is exclusively about the standards of reference which have been set up by international agreement for the various vitamins. The author certainly gives adequate attention to this important topic, but her main purpose has been to describe in detail the biological methods she has found satisfactory for estimating vitamins in foodstuffs and pharmaceutical materials, and the mathematical procedures which she has used in calculating her results. After two chapters on applying the general principles of biological methods to vitamins and on the breeding and housing of experimental animals, she describes suitable methods for estimating vitamins A, B_1, C, D, and E. A chapter on the independence of the vitamins follows, and then four chapters on the theory and application of statistical methods. In general she does not describe chemical and microbiological methods, but she has made an exception in briefly alluding to the antimony trichloride method for vitamin A; she also explains the estimation of this vitamin by ultra-violet spectrophotometry.

It will be clear that Dr. Coward's primary aim has been to provide a bench companion for those who wish to follow her footsteps in her own highly specialized field. The general physician, particularly if he is interested in nutrition, may study it with profit as an object lesson in the extreme care and patience entailed in estimating vitamins by biological methods. It has been the application of such methods over many years by pioneers such as Dr. Coward that has made possible our present detailed chemical and biochemical knowledge of the vitamins. The new edition has been brought up to date by including a chapter on vitamin E, and the chapters on the mathematical treatment of results have been extensively revised.

T. M.

Dr. E. Cunningham Dax, the author of *Modern Mental Treatment: A Handbook for Nurses* (Faber and Faber; 4s. 6d.), gives a simple and concise account of modern mental treatment by physical methods; yet the nurse is not allowed to forget that physical treatment, if it is to be successful, must be integrated into a wider scheme including occupational treatment and psychotherapy in its broadest sense, a scheme in which she plays no small part. One criticism may be made. One of the photographs in the appendix shows a trolley of apparatus for use in insulin treatment. It holds a strange mixture of sterile and unsterile instruments, and is at the same time inadequately equipped for a nasal interruption of coma.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Spasticity. By H. W. Magoun, Ph.D., and Ruth Rhines, Ph.D. (Pp. 59. 10s. 6d.) Illinois: Thomas. 1948.

A monograph on the stretch reflex.

Études Médico-Chirurgicales de Gastro-Entérologie Pratique. By Jean Vanier. (Pp. 180. No price.) Paris: Maloine. 1948.

Clinical observations on a number of abdominal disorders.

The Food and Drink Infections. By the Central Council for Health Education. (Pp. 62. 4s.) London: Central Council for Health Education. 1947.

Report of the conference held in October, 1947

Chirurgie de la Surdité. By J. Salomon Danic. (Pp. 112. 250 francs.) Paris: L'Expansion Scientifique. 1948.

A monograph on Lempert's operation for fenestration.

Mental Health in Modern Society. By T. A. C. Rennie, M.D., and L. E. Woodward, Ph.D. (Pp. 424. 22s.) London: Geoffrey Cumberlege. 1948.

An account of the lessons about rehabilitation learnt during and after the recent war

Introduction to Medical Psychology. By L. Erwin Wexberg, M.D. (Pp. 171. 17s. 6d.) London: Heinemann. 1948.

An introduction intended for the student and physician

Conference on Metabolic Aspects of Convalescence. Transactions of Fifteenth Meeting. (Pp. 163. No price.) New York: Macy. 1947.

Includes a symposium on research with isotopes

Signs and Symptoms. By C. M. MacBryde, M.D., F.A.C.P. (Pp. 439. 72s.) London: Lippincott. 1948.

The clinical approach to diagnosis; references included

Health Instruction Yearbook 1947. Edited by Oliver E. Byrd, Ed.D., M.D., F.A.P.H.A. (Pp. 325. 16s.) London: Geoffrey Cumberlege. 1947.

A compendium of notes on recent advances in health education

1947 Year Book of Pathology and Clinical Pathology. By H. F. Karsner, M.D., and A. H. Sanford, M.D. (Pp. 558. 21s.) London: H. K. Lewis. 1948.

Abstracts from recent papers on pathology, with comments.

Essentials of Endocrinology. By A. Grollman, Ph.D., M.D., F.A.C.P. 2nd ed. (Pp. 644. 60s.) London: Lippincott. 1948.

Material on recent clinical and experimental work is included in this edition.

Ear, Nose and Throat. By George D. Wolf, M.D. (Pp. 523. 60s.) London: Lippincott. 1947.

An outline of signs, symptoms, and treatment in clinical practice.

Michael's Wife. By Gilbert Frankau. (Pp. 544. 10s. 6d.) London: Macdonald. 1948.

A novel.

The Anatomy of the Eye and Orbit. By Eugene Wolff, M.B., B.S., F.R.C.S. 3rd ed. (Pp. 440. 45s.) London: Lewis. 1948.

Many new illustrations included.

A Catalogue of Insecticides and Fungicides. By Donald E. H. Frear, Ph.D. Vol. 1. (Pp. 203. $6.50.) London: W. Dawson. 1947.

List of the chemical formulae and use of insecticides and fungicides.

Ilustraciones Obstetricas. By Gerardo Will and Oscar Agüero. (Pp. 23. No price.) Caracas, Venezuela: Editorial Grafolit. 1947.

Photographs of maternal and foetal abnormalities.

Epilepsy. By Paul H. Hoch, M.D., and Robert P. Knight, M.D. (Pp. 214. 21s.) London: Heinemann. 1948.

The genetics, diagnosis, and management of epilepsy.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JULY 24 1948

FEEDING OLYMPIC ATHLETES

Long before nutrition was the subject of serious study as a separate branch of science athletes were obsessed with the importance of their food in helping them to triumph. As Sir Adolphe Abrahams pointed out at a recent meeting of the Nutrition Society reported elsewhere in this issue (p. 219), the aim of the old-time trainer was to fill his men with beef and beer and then make them work these vital ingredients "into the system." According to Schenk[1] the feeding arrangements for the 1936 Olympic games at Berlin followed this traditional pattern. The average daily food consumption is said to have been 7,300 calories, provided by three times as much protein, five times as much fat, and one and a half times as much carbohydrate as an ordinary man was supposed to require in those far-off days of plenty. Almost all the competitors are reported to have been heavy meat eaters, and the ingestion of large underdone steaks twice daily was not considered excessive or unusual. The allowance of milk was two pints daily, and liberal amounts of eggs, fruit, salads, sugar, honey, and white bread were consumed.

British competitors in this year's games by way of contrast are to be given one pint above the usual allowance of milk, twice the normal rations of fat and cheese, one and a half times the ration of meat, and three times the usual ration of bread. These amounts are those allowed in this country for heavy industrial workers, but they fall far short of the gargantuan feasts which must have been enjoyed in Berlin in 1936. In those days, presumably, the present weekly meat ration would have disappeared at one sitting. On purely theoretical grounds it is not easy to understand why Olympic competitors should need such enormous amounts of foods. A sprinter may do work corresponding to the output of some 400 calories in his daily training, and in a race lasting ten seconds may use up perhaps 20 to 30 calories. A long-distance runner may use up 2,000 calories in a marathon race, although he will not maintain this level of activity in his daily training. In spite of the greater daily energy output of the long-distance runner, however, his appetite will probably be considerably less than that of the sprinter. It is apparent, therefore, that food is not only needed as a fuel but also for the purpose of building up a musculature appropriate for the particular athletic event. When viewed beside the sprinter, or beside the brawny weight-lifter or heavy-weight wrestler, the long-distance runner often appears so lean as to give an impression of undernourishment.

The need to build up muscle may well explain the athlete's desire for meat even though his energy requirements might be satisfied equally well by carbohydrates. Other possible theories are that meat may be important as a source of B vitamins, which are necessary to sustain an increased rate of carbohydrate metabolism in the muscles, or of creatine, which is also concerned in muscular contraction. Psychological factors must be borne in mind, too, for athletes who are inclined to worry and fret about their coming ordeal may be consoled and morally fortified by having plenty of good meat to eat. A craving for sugar, which is sometimes experienced by athletes after strenuous exertion, and which is also familiar to mountaineers, is probably associated with a reduced level of glucose in the blood. While most authorities agree that some Olympic competitors have huge appetites, the data reported by Schenk have been received with some scepticism. Doubts have been raised, indeed, whether members of the British teams have ever eaten quite such spectacular quantities of food.

If this year most of our Olympic athletes are subsisting on the diet which has been allowed them by the Ministry of Food, and have not greatly augmented their supplies from other sources, we may well follow their exploits not only with sporting enthusiasm but also with keen scientific interest. A generally high standard of performance on their part must make obsolete the belief that large quantities of meat provide the best foundation for athletic prowess. Dismal failure on the other hand may make us wonder whether the diet which is now consumed by our heavy manual workers is fully adequate to sustain them in their labours.

[1] *Münch. med. Wschr.*, 1936, **83**, 1535.

MODERN VIEWS ON DIABETES

The modern trend in the treatment of diabetes mellitus is in the direction of standardization and simplification and the elimination of what Dr. G. M. Wauchope, in her paper which appears elsewhere in this issue (p. 191), calls "time-consuming or fussy procedures." This process of simplification has been applied both to diet and to the arrangement of insulin therapy—in the former by the use of a more generous allowance of carbohydrate and free protein and fat, and in the latter by the single injection treatment made possible by the introduction of prolonged-action insulins. In both aspects of the treatment of diabetes there is a real danger of over-simplification at the expense of good control of the disease, a tendency rendered the more dangerous by the fact that the consequences of inadequate treatment are often not at once apparent and may become so only after a period of apparently uneventful years, when there may arise irreversible complications such as retinitis and arterial and renal disease. It is important, therefore, that the carbohydrate content of the diet, however large, should be kept relatively constant and that insulin should be given in sufficient quantity and at sufficiently frequent intervals to produce a normal blood-sugar level over the period of maximum insulin action.

Wauchope describes the results obtained in the treatment of 366 ambulant diabetics with a single, morning injection of globin insulin (G.I.). This substance, as the author points out, resembles Hagedorn's protamine or

[1] *Yale J. Biol. Med.*, 1945, **17**, 705.
[2] *Amer. J. Path.*, 1936, **12**, 33.

delay insulin, its effect being somewhat weaker and more prolonged than that of soluble insulin (S.I.) but stronger and of shorter duration than protamine zinc insulin (P.Z.I.). It is generally agreed that a single, morning injection of P.Z.I. is suitable only for relatively mild diabetics, hyperglycaemia during the day being unavoidable in more severe cases without the addition of S.I. The objection to the use of G.I. for single, morning injections has always been that unless relatively large doses are used the hypoglycaemic action is too short to control the fasting blood sugar, and if large doses are given to overcome this difficulty there is a high incidence of hypoglycaemic reactions in the late morning or afternoon. It is difficult to understand quite why a single, morning injection of G.I. should be the method of choice for almost all diabetics requiring insulin, as Wauchope seems to suggest, when protamine or delay insulin, whose action she agrees is essentially similar, proved inadequate for this purpose even in the hands of Hagedorn and his co-workers. G.I. has now been available for five years, and it is interesting and perhaps significant that a recent survey carried out by the Diabetic Association showed that out of a total of 8,775 patients attending 42 diabetic clinics only 316, or 3.6%, were having G.I. alone, and 22, or 0.25%, a mixture of G.I. and S.I.

The same tendency towards standardization and simplification is to be seen in the treatment of diabetic coma, but with an added element of acute controversy. Much of the discrepancy in results and consequent differences in opinion on the treatment of diabetic coma result from the prevalent misuse of the word coma in this connexion. In his article, which appears at page 200, Dr. R. H. Micks correctly defines coma, but then departs from his definition so as to include those cases of severe ketosis which at most should be considered as pre-comatose. It is important at the outset to emphasize the fact that, in a good hospital diabetic department employing the conventional methods of treatment, the mortality rate of cases whose "mental state is one of mild, moderate, or severe confusion with marked drowsiness" but who are not in coma in the proper sense of the word is or should be negligible. It is only in cases of established coma, and particularly those of long duration, that conventional treatment properly applied sometimes fails to save the patient from death due to circulatory failure. It is important that these facts be kept in mind when considering the claims made by Root and others for the use of large doses of insulin in the first few hours of treatment. All authorities are agreed upon the importance of intravenous fluids in the treatment of coma, and there is much to be said in favour of the use of normal saline rather than glucose-saline in the early stages of treatment. The view held by Root and his followers that glucose is fatal in the early treatment of coma is less widely accepted than Micks suggests. Peters,[1] for example, has given good reasons for the early and continued administration of glucose-saline solution.

Far more controversial are the doses of insulin advocated by Micks. He suggests an initial dose of 100 units in conscious cases followed by a further 100 units every half-hour until obvious improvement is observed. Some authorities would hold that this dosage is contrary to accepted standards of safety and would need to be supported by very convincing results, particularly as dosage is based on clinical improvement of a somewhat indefinite nature which should be apparent in less than fifteen minutes after giving the insulin. It is doubtful whether after so short an interval insulin given subcutaneously to a patient in diabetic coma could be shown by any ordinary chemical test to have had any action. As an initial dose in true coma 500 units is advocated, and in the absence of improvement by the end of the first hour 100 units every ten minutes until improvement begins, the chief signs of which are to be detected in mental state and hyperpnoea. Opinion may differ on the necessity of giving such heroic doses, and it is too early to pass judgment on a method of treatment which in the hands of a man of Root's experience has given good results, but a warning note must be sounded on the question of safety. Those who use such doses of insulin must remember that their hypoglycaemic action may be prolonged. It is true, as Micks points out, that death in hypoglycaemia following diabetic coma has not in the past been commonly reported, but it has occurred nevertheless, and it may occur more often in the future if this type of treatment becomes popular.

Among the irreversible complications already referred to as possible sequelae of inadequate diabetic control the one which has received particular attention in recent years in the U.S.A. is renal disease. Since Kimmelsteil and Wilson[2] published their original description of the intercapillary glomerular lesion in long-standing diabetics numerous articles have appeared in the American literature confirming and expanding the original findings. There can now no longer be any doubt of the existence of the lesion and its association with diabetes. It has even been said to be the commonest single pathological finding in uncomplicated cases of diabetes. The appearance, therefore, on page 194 of this issue, of a study of the renal complications in diabetes by Drs. W. R. Gauld, A. L. Stalker, and A. Lyall, from Aberdeen, is particularly welcome since it is the first in our literature. The study has been made on a relatively small group of cases, but confirms the findings of earlier workers and helps to throw light on a clinical picture in which albuminuria, hypertension, oedema due to hypoproteinaemia, nitrogen retention, and retinitis are the chief features. In the past the difficulty has been to correlate clinical with pathological findings—a not uncommon problem in renal disease—but the present study indicates the existence of at least four types of renal failure in the diabetic and that the characteristic glomerular lesion, due to associated vascular changes, is incidental to and not the primary cause of the renal failure. The authors conclude on a gloomy note: prognosis is bad and treatment ineffective. While there can be no doubt about the latter, the period of two years from the onset of retinitis and oedema to death in renal or cardiac failure may be extended in some young diabetics. It is significant that the series of 26 cases reported, with the exception of 3 cases of subacute nephritis, consisted of diabetics who were between 50 and 70 years of age. The occurrence of this clinical syndrome in young persons who have had diabetes for ten or more years is becoming increasingly widely recognized and constitutes a grave problem in the treatment of the disease among the young.

EMPIRE MEDICAL ADVISORY BUREAU

When he formally opened the Empire Medical Advisory Bureau at B.M.A. House on July 13 Lord Addison observed that in no place could a student feel more lonely than in London. The doctor from the Dominions and the Colonies who now comes to Britain will cease to feel like a stranger in a strange land if he takes advantage of the facilities of the E.M.A.B. established by the Association and now under the direction of Dr. H. A. Sandiford, who for the past four months has been busy equipping himself with information to turn to good account for our professional colleagues overseas. In spite of the unavoidable restrictions still in force we want medical men and women from the Commonwealth and Empire to visit Britain so that we may get to know them in person and so that they may see at first hand the various sides of British professional life. The E.M.A.B., through Dr. Sandiford, is here in the first place to welcome the doctor from the Dominions, to put him wise to our island customs, to advise him on accommodation and travel, and to smooth out the hundred-and-one difficulties facing anybody visiting this country for the first time.

Britain, we believe, has a wealth of medical knowledge and experience to offer the postgraduate student, and most of the medical visitors from overseas come here for postgraduate study, whether for the higher diplomas or for enlightenment in a special subject. The second function of the Bureau is, then, to provide the visitor with information about postgraduate facilities. In doing this it is not, of course, attempting to duplicate or interfere with the activities of postgraduate organizations. The Bureau is a marshalling yard of advice and postgraduate information.

London is fast becoming the most important medical postgraduate centre in the world. There is the Postgraduate Medical School at Hammersmith, and the British Postgraduate Medical Federation, which, under Sir Francis Fraser, has set up Institutes in special branches of medicine designed more for those pursuing advanced studies and not providing prescribed courses for higher diplomas. The Royal College of Surgeons now has facilities for systematic postgraduate courses in the various specialties. Another centre of intense postgraduate study is Edinburgh. This is to mention only a few and only some of the activities of these organizations. An important link with the Bureau's work is London House in Bloomsbury, under the Dominion Students Hall Trust; here the postgraduate enjoys many of the advantages of a student resident in a university college. Similar hostels elsewhere, for example in Edinburgh, would do much to promote a more lively feeling of fellowship with our colleagues from the Dominions and Colonies, and it is to be hoped that benefactors with a strong sense of Empire may not ignore the opportunity of attaching name and wealth to so good a cause.

The doctor overseas who wants to come to Britain to see for himself how we live and work would do well to provide and ask for information well in advance of his visit. To this end he should write to Dr. H. A. Sandiford, Empire Medical Advisory Bureau, at B.M.A. House. Much time and money will be saved if the intending visitor has the ground well prepared in this way. The man who wants to pursue a systematic course of study should give what facts he can about his own career and support his application with an introduction from someone qualified to speak with authority on his behalf. In the face of a high demand for postgraduate work those responsible for organizing it must naturally be satisfied that the postgraduate student may properly claim to take advantage of it. Many doctors from overseas, however, come to Britain not for systematic courses but for instruction in certain special lines of investigation and treatment. In any case, careful inquiry before coming will enable the visitor to take the fullest advantage of what can be offered to him, and ensure that he will have at the least a warm welcome.

SYMPATHECTOMY FOR CHRONIC LEG ULCERS

Chronic ulcers of the legs associated with insufficiency of the venous drainage are relatively common and may be crippling. The various forms of treatment which have been tried have so infrequently produced permanent cure that many have adopted the fatalistic attitude that such ulcers are incurable. Recently, however, study of the conditions which cause the persistence of the ulcers gives greater hope that a cure can be effected. The two important factors are, first, the underlying vascular defect, and, secondly, the superadded infection, usually with Gram-negative organisms of the coli or proteus groups. Streptomycin has proved most useful in dealing with the latter, and local applications have resulted in very rapid healing of ulcers of many years' duration.

The chronicity of the ulcers is mainly due to poor nutrition of the tissues, partly from the sluggish blood flow and partly from the oedema of lymphatic stasis. The ulcers associated with primary varicose veins with incompetent valves usually respond rapidly to a properly conceived and executed ligation operation, and this should be the first line of treatment in such cases. The majority of chronic ulcers are, however, associated with impairment of the drainage in the deep veins, and in these improvement in the circulation can be achieved only by other methods.

Recently lumbar sympathectomy has been undertaken with the object of improving the circulation in the limb. The results claimed have been divergent, some writers, such as Allen, Barker, and Hines,[1] reporting that the operation has no effect on the healing of the ulcers, and others finding marked improvement and rapid healing as the outcome. Mr. J. Borrie and Mr. E. Vernon Barling, for example, report in this issue of the *Journal* four cases of chronic ulcer which healed rapidly after the operation, and only one has subsequently broken down. There must be some explanation for these conflicting views, and it seems to lie in the type of case selected for operation. Sympathectomy is by no means always successful; occasionally unilateral sympathectomy performed on patients with ulcers on both legs has produced no faster rate of healing or more permanent cure than was observed on the unoperated side. In these cases the skin round the ulcer is pigmented rather than cyanosed, and the ulcer base is callous and relatively avascular. It must be that tissue fibrosis and local endarteritis have progressed to cause severe local organic ischaemia which cannot be relieved by the removal of sympathetic tone. Again, the foot is frequently warm in such cases, an indication that no excessive sympathetic activity is present. Sympathectomy is more likely to be successful when there is cyanosis rather than avascularity in the region of the ulcer, and the foot is often colder than its neighbour. It is only by careful differentiation of these types, combined with the response to paravertebral sympathetic block, that the patients likely to benefit from sympathectomy can be selected. In this connexion a good response to the block is best judged by the improvement in the colour of the ulcer and surrounding skin rather than by the change in the temperature of the foot. In all cases local support by some form of elastic bandage is of the greatest importance in maintaining improvement and preventing relapse.

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[1] *Peripheral Vascular Diseases*, 1946. Saunders, Philadelphia.

Too many patients are still treated with varied local applications and are seen by the surgeon only after years of such therapy. A more widespread appreciation of the benefits which surgery can offer in many of these cases would result in a great saving of suffering and time. There is no doubt that treatment which combines improvement in the local circulation and defeat of the persistent infection enables a more optimistic view to be taken of this condition than in the past.

THE DEATHS OF DOCTORS

In assessing a fair remuneration for general practitioners the Spens Committee pointed out[1] that the strain of medical practice shortened the expectation of life of doctors, who have a mortality rate 34% above Civil Servants and 26% above professional engineers. Unfortunately, owing to the war, no up-to-date occupational mortality statistics are available for this country, but the gap has been partly filled by recent American reports on the longevity of physicians.[2 3] A comparison between the mortality experience of doctors and the remainder of the male population over the age of 25 shows that, although the main causes of death among doctors are not appreciably different from those among the white male population as a whole, the relative importance of the individual causes varies considerably between the two groups. Thus, although the overall death rate for doctors in the U.S. is little higher than that for the general male population, the advantage held by doctors under 45 is largely outweighed by their heavy death rate at later ages. This divergence is due to the differential mortality from specific causes of death.

The mortality ratios, which express the proportion of deaths actually observed among doctors to the number to be expected at the rates prevailing in the general male population, show that the former have an unduly heavy death rate from leukaemia (M.R. 1.75), biliary calculi and gall-bladder disease (1.45), cerebral haemorrhage (1.2), diseases of the heart and coronary arteries (1.18), and arteriosclerosis (1.16). On the other hand doctors have a death rate below general expectation from automobile accidents (M.R. 0.89), cancer (0.81), appendicitis (0.77), hernia and intestinal obstruction (0.75), nephritis (0.73), peptic ulcer (0.62), diseases of the prostate (0.54), tuberculosis (0.45), and syphilis (0.34). Clearly this latter group of causes of deaths comprises just those diseases whose fatality rates can be reduced by early diagnosis and rapid and effective treatment. Most of the causes of unduly heavy mortality among doctors, on the other hand, are those believed to result from the stress of a harassing existence which weighs most heavily on men past their physical prime. Thus, although the expectation of life of a young doctor of 25 is slightly higher than is usual in the population—43.5 instead of 43.3 years—this advantage is lost by middle age, when, at the age of 55, a doctor has an expectation of life of 17.9 years, six months less than the general expectation.

These findings have two important implications. The first is that, despite the disregard which many doctors notoriously have for their own health, their favoured position, both professionally and socially, does result in a lessened mortality from diseases amenable to detection and treatment. Their cancer experience, which is particularly good for neoplastic disease of the digestive tract, is a powerful argument in support of the campaign for early recognition and treatment of cancer. Conversely, their high death rate from cardiovascular diseases cannot be entirely explained by better diagnosis, though this, rather than any specific occupational hazard such as *x* rays, may be the reason for the exceptional mortality from leukaemia, which is shared by men of social class I in this country. There is, then, a need for special study of the occupational and constitutional background of those "stress diseases" which so often cut down men at the peak of their maturity and usefulness, both in our own profession and in others.

[1] *Report of the Inter-departmental Committee on Remuneration of General Practitioners*, 1946. H.M.S.O., London.
[2] "Longevity and Mortality of Physicians." Dublin, L.I, Spiegelman, M., and Leland, R. G., *Postgraduate Medicine*, 1947, **2**, 388.
[3] *Statistical Bulletin*, Metropolitan Life Insurance Co., 1947, **28**, No. 10.

LIBERATION OF HISTAMINE BY CURARE

In 1939 Anrep and his colleagues[1] observed that the injection of curare into an artery supplying the muscles of a dog's leg set free in the blood a substance which behaved like histamine. This observation, which at the time aroused only academic interest, has now gained practical significance because of various unusual effects which have been described in patients to whom curare has been given either as "intocostrin" or as *d*-tubocurarine chloride. Thus occasionally the intravenous injection of curare causes a transient fall of blood pressure accompanied by a feeling of warmth, giddiness, and headache; exceptionally the fall of blood pressure has been severe and accompanied by haemoconcentration.

Grob, Lilienthal, and Harvey,[2] at Johns Hopkins, have recently investigated the action of curare on the cardiovascular system in man, using the methods they introduced for the study of the action of neostigmine ("prostigmin") in myasthenia gravis. They injected curare into the brachial artery below a pneumatic cuff which was inflated to 100 mm. for two minutes after the injection. They found that the injection of an amount of curare equivalent to about 7 mg. of *d*-tubocurarine chloride produced an effect very like that of 0.25 mg. of histamine base. The curare caused a loss of power which was not produced by histamine, but when the cuff was released the forearm became intensely hyperaemic and engorged. Numerous areas of purple discoloration like ecchymoses appeared. They vanished in the next 30 minutes. As they faded the arm swelled with a firm oedema; broad weals appeared, which often itched. The swelling disappeared in 16-36 hours according to the dose given. These changes occurred with curare and with histamine. The effect of injecting curare into the skin was also studied. Again the resemblance to the action of histamine was complete, the triple response described by Lewis being observed in all its stages. Intra-arterial injection of curare also caused a rise in acid secretion in the stomach.

Final confirmation of the view that curare liberated histamine was obtained when Harvey and his colleagues were also able to show that these effects of curare were greatly diminished or abolished by antihistamine substances such as "pyribenzamine" or "benadryl." Thus when 200 mg. of pyribenzamine was taken by mouth 30 minutes before the intra-arterial injection of curare the local swelling and the local and general skin temperature changes did not appear. On the other hand, neither atropine nor neostigmine modified the vascular effects of the drug. It should be emphasized that these vascular effects were not observed when curare was injected intravenously; they followed only intra-arterial injection. Occasionally in susceptible subjects, however, they may occur in minor form after intravenous injection, and can then be counteracted by the injection of a suitable antihistamine drug.

[1] *J. Physiol.*, 1939, **95**, 148.
[2] *Bull. Johns Hopk. Hosp.*, 1947, **80**, 299.

DERMATOSIS IN THE PAINT INDUSTRY

In view of the great variety of constituents of paint and their skin-irritant properties it is scarcely surprising that workers who handle paints suffer considerably from dermatosis. It appears from a recent investigation[1] in Finland that of all the ingredients—oils, resins and other binders, inorganic pigments, organic dyes and pigments, and organic solvents—the organic solvents are the chief offenders. These include turpentine, aliphatic and aromatic hydrocarbons, alcohols, esters, ethers, and ketones. The responsibility for an incidence of 10.7% of occupational dermatosis among paint workers in Finland rests very largely on the greatly increased use during the war of sulphate and kiln turpentines, with their content of high boiling-point fractions (carene, limonene, dipentene). The aliphatic and some of the aromatic hydrocarbons, dye solutions, and whitewash also produced a few cases of irritation, but lead, its salts, and white lead not a single case. It was found that the charwomen and cleaners of paint pots were most frequently affected; workers in the paint factories suffered less severely, and the actual painters, polishers, and sprayers least of all.

The dermatosis is generally of two distinct varieties—toxic dermatitis and allergic eczema; the latter is distinguished by the slow development of sensitization, short latent period, long duration, and greater severity. Patch tests are valuable in confirming the diagnosis of allergic dermatitis, but are not always conclusive, being positive in only 18% of cases of occupational dermatosis. The final diagnosis must therefore be made on the course and symptoms of the disorder, the occurrence of attacks following exposure to a known toxic agent and improvement after cessation being of course very significant points. Hereditary and constitutional factors (such as a blonde complexion and a seborrhoeic skin) appear to play less part in predisposition to allergic dermatitis than has hitherto been generally believed, but women do tend to show greater susceptibility than men.

The disability resulting from dermatosis among paint workers is considerable, not only because of the duration of the actual disorder—usually about six months in allergic eczema—but because relapse after return to work often necessitates a complete change of occupation. Among the preventive measures recommended, prohibition of the use of solvents for cleansing the skin (a widespread habit among all workers who use contaminating materials) needs special emphasis. The use of non-irritating detergents for cleansing should be encouraged, and protective ointments are of some value, but the most important factor is the restriction of those ingredients, particularly the irritating turpentines, which have been found to possess toxic properties.

[1] Pirila, V., *Acta derm.-venereol., Stockh.*, 1947, **27**, 16. Suppl.

LISTER MEDAL

The Lister Medal for 1948, which is awarded in recognition of distinguished contributions to surgical science, has been granted to Professor Geoffrey Jefferson, C.B.E., F.R.C.P., F.R.C.S., F.R.S., Professor of Neurosurgery in the University of Manchester, in recognition of his contributions to "knowledge of the functions and structure of the nervous system, made as a philosophical biologist, practising neurosurgery." Professor Jefferson will deliver the Lister Memorial Lecture in London in June, 1949, under the auspices of the Royal College of Surgeons of England. This is the ninth occasion of the award, which is made by a committee representative of the Royal Society, the Royal College of Surgeons of England, the Royal College of Surgeons in Ireland, the University of Edinburgh, and the University of Glasgow.

FATTY LIVER DISEASE IN INFANTS

The high incidence of hepatic disease among infants in tropical and subtropical areas has again been discussed. With the exception of so-called infantile biliary cirrhosis in India the disease is usually associated with poverty and malnutrition. Waterlow[1] has recently reported that in the West Indies the disease occurs almost entirely in infants under two years old; in most cases the symptoms started shortly after weaning. They included vomiting and oedema, and the liver was enlarged. Necropsy and biopsy showed that the enlargement was the result of severe fatty infiltration. Symptoms of associated vitamin deficiencies, which were a conspicuous feature of the cases reported from Africa,[2 3 4] were usually insignificant in Waterlow's cases, and certainly none had pellagra.

Recent experimental work on animals has clearly shown that severe fatty infiltration of the liver may result not only from exposure to toxic substances but from dietary deficiency. The dietary factors concerned in the prevention of fatty infiltration are termed lipotropic, and the two best established are choline and methionine, the former a member of the B vitamin complex, the latter an amino-acid widely distributed in proteins of high biological value. There are also other factors associated with fat metabolism. Inositol, pyridoxin, tyrosine, and some oestrogens have lipotropic activity, while excess of biotin, cystine, or nicotinic acid has the opposite effect. Possibly many other unknown factors affect the fat content of the liver; although choline and methionine are of great importance in the rat for their lipotropic activity, it does not follow that they are the principal lipotropic agents in man. The disappointing results obtained by Waterlow when he used these two substances in a very small series of human cases are therefore not surprising and are in accordance with the African workers' experience. However, the striking improvement in several cases that followed ingestion of moderate amounts of milk helps to confirm the generally held opinion that the condition is one of nutritional deficiency. But, as Waterlow points out, since this so-called "fatty liver disease" does not occur in cases of pure starvation it is better regarded as a result of nutritional imbalance rather than one of pure deficiency. The most obvious defect in the dietary of the affected infants is an absolute inadequacy of protein associated with a relative excess of carbohydrate. From the work of Best[5] and McHenry[6] it seems probable that the carbohydrate is the source of the liver fat, while deficiency of protein is responsible for the lack of lipotropic activity.

Since the disease does not appear before weaning and is apparently remediable by adding milk to the diet, the solution of these important problems lies in the production of more milk or milk substitutes. Unfortunately food yeast, despite its high lipotropic activity in the rat,[7] has proved to be therapeutically ineffective both in Africa and in the West Indies, and the work of the Gillmans suggests that it is not entirely without danger as a supplement in malnourished individuals.

Dr. George Brock Chisholm, of Canada, who was Executive Secretary of the Interim Commission of the World Health Organization, was appointed Director-General of the Organization at the meeting of the World Health Assembly now being held at Geneva.

[1] *Spec. Rep. Ser. med. Res. Coun., Lond.*, 1948, No. 263.
[2] Trowell, H. C., *Arch. Dis. Child.*, 1937, **12**, 193.
[3] Gillman, T., and Gillman, J., *J. Amer. med. Ass.*, 1945, **129**, 12.
[4] Hughes, W., *Trans. R. Soc. trop. Med. Hyg.*, 1946, **39**, 437.
[5] *Vitamins and Hormones*, 1943, **1**, 1.
[6] *Science*, 1937, **86**, 200.
[7] Himsworth, H. P., and Glynn, L. E., *Clin. Sci.*, 1944, **5**, 93.

TREATMENT OF ANXIETY STATES IN GENERAL PRACTICE

BY

C. A. H. WATTS, M.B., B.S., D.R.C.O.G.

Recent correspondence in the Press has shown that some practitioners are alarmed and dismayed at the incidence of neurosis in general practice. The figures given vary from 14% to 50% of all patients seen. It is obvious that to many doctors neurotics are the bugbear of general practice, and that means that a substantial proportion of their patients receive grossly inadequate treatment. Anxiety gives rise to more suffering and distress than any other aetiological agent of disease. Its treatment is not as complicated as many imagine, and this paper is an attempt to describe one method by which the problem can be tackled in general practice.

The vast majority of neuroses seen in my practice can be dealt with at the surgery. Only a small proportion of patients need to be put off work for a week or two. Most neurotics can be treated while continuing at work. This is not only better for the community as a whole but it is also better for the patient. It underlines the fact that he is not physically ill. Thus the general practitioner's surgery is in many ways an ideal treatment centre for neuroses.

First Interview

The patient is encouraged to expound all his symptoms. He is encouraged to talk and get everything off his chest. When he can think of no more symptoms I question him about each part of his body to make sure he has missed nothing from his history. Details of previous ill-health are recorded, as well as the family medical history. I ask for the earliest memory the patient can give me. The average person remembers back to about five years. The reason for this question will be seen later. I find out what kind of scholar the patient was as a child, and a detailed history of employment is taken. Habits are recorded, including smoking, drinking, sociability, pastimes, and hobbies. Details of the marriage are taken if these are applicable. If the patient is unmarried romantic situations are discussed. I do not make notes on sexual matters, as I feel it may embarrass the patient. Any points of note can be added later. To determine attitudes to parents I ask such questions as, "When a child of 12 to which parent would you have gone for extra pocket money, advice, and so on?" Most patients name either one or other parent. Very few say they have no preference. Such a bias is useful evidence, and, as Case 206 shows, such feelings can play a part in a neurosis.

To exclude organic illness a complete physical examination follows the history-taking. The above preliminaries sound lengthy, but one picks up speed with practice, and I can usually clear my way for psychotherapy in one or two sessions. If the case is a neurosis the patient is told that his symptoms are due to what is popularly known as "nerves." I stress the importance of both speaking the same language and understanding each other. I explain that the symptoms are due to anxiety, and I point out that worry can produce pain as severe as any toothache. I make sure he doesn't go away with the impression that I think either that there is nothing wrong or that the pain is imaginary.

Psychotherapy

The next session opens with a summary of my previous remarks. If the patient needs convincing that the mind can upset bodily function I ask him what happens if he goes to church without a pocket handkerchief. This usually produces the correct answer, and I point out that just as worry can upset the nose so it can upset the rhythm of the heart, breathing, or any other bodily function. I stress the fact that although worry can cause symptoms, that does not mean the body is diseased. It is sometimes profitable to explain to the patient how fear works, and to point out that anxiety is the same reaction, only it is prolonged in time. Palpitations, dyspnoea, sweating, and an empty feeling in the middle can all be explained in this way. The condition is liable to form a vicious circle. Anxiety causes symptoms, and the symptoms increase the anxiety. Reassurance helps to break this vicious circle for a time, but by itself it is usually insufficient. It is necessary to go deeper and to work out the mechanism of the neurosis as well. My methods may be summarized as follows:

1. *Direct Approach.*—This means a correlation of symptoms and circumstances. Case 24, described below, illustrates this method.

2. *What Useful Purpose does the Neurosis Serve?*—All neuroses are motivated at a subconscious level. Some useful purpose is served even if the bargain as a whole is a bad one.

3. *What Emotions does the Neurosis Express?*—A case of effort syndrome may be the result of a broken romance. There *is* such a thing as a broken heart.

4. *Dream Interpretation.*

5. *Free Association.*

One, two, or more of the above approaches may be used in an attempt to discover the patient's real problem and to make him face up to it.

1. The Direct Approach

Sometimes the patient frankly admits he has problems, and these can be freely discussed. More frequently, however, he will affirm that he has no worries. I reply that a person can worry about something of which he is unaware. Here it is often necessary to describe the subconscious mind. I remind the patient of the iceberg, pointing out that whereas only one-ninth sticks out of the water, eight-ninths is submerged and hidden from view. The same applies to the mind. I describe the subconscious as the hidden part. It is in fact the storehouse of forgotten memories. Here the date of the earliest memory comes in useful. Most people readily appreciate that the early life and training of a child are of great importance, and yet these vital years are largely forgotten. The memories are buried in the subconscious mind, and from there are able to influence the individual.

Case 394.—This patient, a woman aged 25, was adopted at the age of 2. She had no conscious memories of her first two years of life nor of the town H. in which she was reared. At 14 she was told by her foster-mother that she had been adopted. She told her mother that she knew already, although she was certain no one had mentioned it. Clearly she had never completely forgotten. The name of the town H. always filled her with forebodings. Once when a van from H. stopped at the door she ran upstairs and locked herself in her room for four hours. She was 7 years old at the time. All this fear of H. went when she knew about the adoption. For the first time she realized she was secure and could not be taken back to H. and to her first home, which she had long forgotten.

A case such as this may be quoted to illustrate subconscious memories. After some such digression I ask the patient to tell me when the symptoms first started. We go over details, not of the feelings but of the background. Something in the circumstances has upset the patient. He is not facing up to reality, and his symptoms are a useful red-herring across the trail. In discussing the first attack one often comes across some clue or something worth opening up.

Case 36.—This man of 24 was suffering from effort syndrome. His first attack came on in Switzerland, where he was awaiting repatriation as an escaped prisoner of war. He remembered that he was then writing to his aunt, but as the letter had been written some eighteen months prior to my interview he had no idea of its contents. I told him that something in his letter had upset him, and that if it was important enough to upset him it could not really have been forgotten. I told him that if we left the subject and talked of other things the memory might return.

"What do you think of your aunt?" I asked him. "I'm very fond of her," was his immediate reply. We discussed the old lady. She was his foster-mother, but, being a maiden lady, she was called aunt. She had been kindness itself to him, but he was anxious to break away and stand on his own feet. After half an hour of discussion I repeated my question, "What do you think of your aunt?" "It's a mixture of gratitude and indifference," was his reply. In his first answer he had given his conscious feelings or the orthodox reply which was expected of him. His real feelings had to be stimulated before they were obvious, especially to himself. We broke off the session at this point, but as he reached the door he remarked, "I know now what was in that letter." He told me he was replying to a request from his aunt. She had made him the generous offer of a farm which she wanted him to take over. If he accepted the offer he would lose the independence for which he was striving. It was not easy to word a letter refusing the offer without hurting her feelings and appearing ungrateful. Syncope came as a

temporary respite from his struggle. The mechanism is often clear to the therapist before the patient has any idea of what it is all about, but it is better for the patient to reason out his own problems. Time will not always allow this process, which is necessarily slow, so that once I feel the patient has a grasp of elementary psychology I am often prepared to elaborate the case as I see it. If he can intellectually accept my suggestions he usually improves, but it is surprising how quickly the mechanism is forgotten from one session to another. Constant repetition and going over old ground is usually necessary.

If discussions as illustrated above do not bring the problem to light there are the other lines of approach.

2. What Useful Purpose does the Neurosis Serve?

This method is well depicted in the following case.

Case 208.—A woman aged 42 had called me in because her only child, aged 4, had developed mannerisms and was unduly afraid of cows. I asked her mother to come and see me at the surgery, and it was soon obvious that she herself had a quite severe anxiety state. She complained of pains in her chest and shortness of breath. She had given up cycling and had cut down all her activities. She was convinced it was only a matter of time before she dropped down dead. So sure was she of this that she always carried her identity card so that her body would be recognized. She even hid a farewell letter to her husband telling him how to carry on. Such precautions are a measure of how bad she felt. To summarize the case, which in all took four sessions: she had a pronounced "Atalanta complex" and was markedly fixated to her father, who had died two years previously from heart disease. As is often the case in neuroses, his illness served as a pattern for her symptoms. So great was her fixation that she was courted for nine years before she would consent to marry at 36. Attracted by her father, she was strongly antagonistic to her invalid mother, who lived at the other side of the town. She visited her mother thrice weekly, but it was an irksome duty and gave her no pleasure. Consciously she strove to be dutiful; subconsciously she hated her mother and resented the attention she had to pay her. This is roughly what must have happened. When she felt tired one day she decided she was not fit enough to make the journey. "I would go if I felt better," was her feeling, and so she stayed at home. The purpose of the neurosis is clear. She gave up cycling, and if she had to use a taxi the visits could be cut down to once a month. As T. A. Ross (1937) put it, a neurosis is always a bad bargain in the end. Her feelings excused her certain duties towards her mother, but in the end they made life almost unbearable for the patient herself. Once all this conflict had been clarified at a conscious level the patient felt much better. After the third session she announced herself as well. She could run upstairs and swill the yard in a way she had not done for months. All her fears had left her, and, what is more, her little girl had recovered too. I don't know much about child psychology, but treatment of the parent often brings about recovery.

3. What Emotion is Expressed by the Neuroses?

Case 24.—This young soldier was referred to me for persistent vomiting. No physical cause for his complaint could be found. He had escaped from a P.O.W. cage in Italy and for a year had lived the life of a bandit. The day after he had reached the British lines—and safety—he started vomiting. I could find no reason at first, so I flung out at him, "What does vomiting express?" He could not see my point, so I told him it could be a sign of disgust. I related the story of an Englishman who, having enjoyed a French dish of frogs' legs, was sick when he heard of what he had eaten. My patient opened up at once. Talking of disgust, he said he had never been so shocked in his life as when he was rescued. The Fascist mayor of an Italian village had entertained him with the object of trying to make a good impression. When my patient heard English voices outside he went out and greeted a tank commander. They smoked a cigarette and arranged a rendezvous, as the tank had to complete a patrol before picking him up. When the tank moved on he returned to the house to find that the mayor and his wife and family had all been butchered by patriots. Their brains bespattered the walls and their bellies were ripped up. He said he had never seen such a disgusting sight in his life. The next day he started vomiting.

The correlation of symptoms and circumstances was very instructive in this case. He had been a bilious child, and with some hesitation he produced this story. His father had died when he was 5. His mother took to drink, but he didn't realize this until he was about 7. He found her sitting at the table so ataxic that she could not hit her mouth with her spoon as she ate. He told me he would never forget the feeling of dismay and disgust that swept over him. So far as he could recollect his bilious bouts came on after this incident, and it looked as if they served a very useful purpose in forcing his mother's attention on him from time to time. Later, as a clerk in an insurance firm, he frequently lost work owing to his attacks. He did not like the work, and he felt that his talents were being exploited. When the director of his firm visited his office he sought an interview with him. He evidently made a good impression, as he became the private secretary to this man, his salary was raised, and he had no more attacks of vomiting. He had never correlated his symptoms with his environment. The comparison showed how vomiting on each occasion had expressed disgust.

While on week-end leave this man had an unpleasant experience. He was to visit an uncle, but when he got there he found his host had committed suicide and the family were in a turmoil. I asked him if he had been sick. "I felt nauseated," he said, "but after our talks I felt I should be able to control myself, and I never actually vomited."

4. Dream Interpretation

Freud described dreams as the highway to the subconscious. In a paper such as this it is impossible to go fully into the subject, but I find it useful on occasion to explain the rudiments to my patient. Dreams all have a meaning; sometimes it is obvious, but more often it is obscure. Dreams are like cartoons. At face value the picture is ridiculous, but there is a hidden meaning behind it. Frequently there is a wish fulfilment. The hungry P.O.W. would dream of Christmas dinner at home, and so on. Dalbiez's (1941) book gives some very useful chapters on Freud's teaching about dreams, and dreams by their revelations can often considerably shorten treatment. I usually ask patients to write down any dreams they have between the sessions, as the treatment itself often stirs things up and useful information emerges during sleep.

A woman came to see me about a phobia which had troubled her since she was 13. We could find no trigger incident to put the neurosis in motion at that age. I told her I was confident that we would find something, and I asked her to remember her dreams. The next session she came back and said she had dreamed someone had left a brown-paper parcel on the doorstep. She awoke and found herself in an awful state. "I know now what upset me at 13," she said. Then she proceeded to describe how one day when she came home from school she had found a brown-paper parcel on the kitchen table. She was curious and looked inside. It contained soiled linen and a placenta. She did not know what it was, but she felt guilty about the whole affair and associated it correctly with the birth of her youngest brother. Soon afterwards her periods started and the same feelings of guilt assailed her in spite of her mother's meagre assurance that it was a normal event. When I questioned her about these memories she affirmed that, so far as she could remember, she had never given the matter thought since her marriage seven years previously.

The most ordinary dream may have a profound significance. Case 394 reported that she had dreamed she was placing a wreath on the grave of a brother who had been killed in a gravel-pit accident six years previously. My first impression was that this dream was a compliment to that brother whom she fondly remembered in her dreams. I heard her sob and found her in floods of tears. Such an emotional outburst is always most satisfying, as one can be sure one is hot on the trail of something important. In a few minutes the problem was clear. When she could speak she told me her father-in-law owned the gravel pit, and the two families were at loggerheads because of this fatal accident. She could not discuss the matter with anyone—even her husband.

After this session, without any prompting from me, she told her husband all about it. He laughed at her and reassured her; and when I saw her again her troubles were at an end.

5. Free Association

This is sometimes very useful, but I do not often use it. The patient is shown how to relax on a couch and is told to repeat whatever comes into his mind, however strange or out of place it may seem. I must point out that it takes practice on the part of both patient and doctor to achieve proper relaxation. This method is useful in long-term cases or when a resistance is holding up progress, but I do not have many long-term cases. Hypnosis and narco-analysis I have never used in general practice.

Short Cases.—If one is on the look-out for neuroses, and examines the patient as a whole in his environment, one can frequently give considerable help with very little trouble or expenditure of time.

Case 357.—This girl, aged 17, when seen was complaining of loss of appetite and feeling sick. She looked a picture of health after

her seaside holiday. While she was getting into bed upstairs I questioned her mother about her, and learned she was about to go to college. She was leaving home for the first time in her life. She had an over-protective mother, and I knew the girl would feel the wrench. I discussed these possibilities with the mother and then went to examine the patient. Nothing abnormal was found, and I put forward my views to the girl. I felt that the queer feeling in her middle was due to the apprehension about leaving home. When I got downstairs the mother told me she was sure I was right, as the same thing had happened when the girl started school. A follow-up some months later showed that the feelings had cleared after a few days at college. She herself was well satisfied with my diagnosis. In all, this case took about half an hour of my time. It required no medicine and no further attention.

Chronic Cases.—Some patients improve up to a point, but can get no further; these require an occasional maintenance dose of psychotherapy. This is truly tiresome and often disheartening, but in my view it is far more honest than putting off the neurotic with a bottle of medicine.

Case 142.—This patient was a woman of 40. Her troubles began at 16 when spinal disease was diagnosed and she was put on her back for three months. Since that time she has always had a "weak back," although no G.P. or specialist has been able to explain why. From the psychological point of view she had enough to break anyone's back. She was an intelligent and very capable person, but at 14 all hope of advancement along her own lines went when she was drawn into the family business because of her mother's illness. The family were thrifty and hard-working to a degree of absurdity. Work and money-making were the only things that mattered. Social life was frowned on; smoking and alcohol were forbidden. At 40 her mother still referred to her as a young girl and treated her as such. After a few sessions there was a vast outpouring of hatred against her mother with floods of tears. After that she felt better but never completely well. How can she get well under such impossible circumstances? Every six weeks I see her for a painful three-quarters of an hour, during which time she pours out her woes and her resentment against the family. Until her parents die she is in a hopeless trap. She has not the training, resources, or the courage to go elsewhere; but she can relieve her feelings to me whenever she likes, and on the whole she is better. She at least puts the blame where it rightly belongs and does not waste my time talking about her back.

Other Conditions

I have referred in a previous article (Watts, 1947) to the "feel" of functional cases. The typical neurotic willingly co-operates in treatment and takes a real interest in what is going on. If the patient is constantly difficult and lacks the spirit of co-operation the condition is probably not a neurosis but one of the following:

(i) Psychotic—chiefly endogenous depression. This condition is quite as common as the anxiety state.

(ii) Mental defect.

(iii) Psychopathic personality.

(iv) When the neurosis is too profitable to abandon. It is almost impossible to cure a neurotic on a pension, where a cure of the complaint spells financial loss.

Mentally Retarded.—While deeper forms of psychotherapy are impossible with the mentally retarded, sympathetic handling can do a great deal to jolly them along. One of my best cases was that of a girl of this type. She had not worked for ten years because she felt too ill. By winning her confidence and with persuasion I made her accept my idea that she felt ill because she did not work and that work itself would make her feel better, not worse. After four months of patient prodding she took the plunge, and in ten months has missed only two weeks of work.

Comment

Drug Treatment.—Drugs play a useful part in treatment. In an article of this type it is impossible to go into details. I fully endorse the views of Sargant and Slater (1948), and the rationale of drug therapy is explained fully in their monograph. The point I stress with patients is that drugs will not *cure* a neurosis. Recovery will only take place with successful psychological treatment. I explain the situation to them as follows: "If you came to me with a broken leg you would not be satisfied if I handed you a crutch and told you to manage on that. Your objective would be to get the fracture set and the leg made useful again. Drugs to a neurotic are a useful crutch, but no more. They are only a temporary measure, and in no way replace psychotherapy, which aims at complete recovery."

Results.—In a series of 70 consecutive cases 35.7% recovered, 34% were improved, 18.6% were not helped at all, and the remaining 11.6% have not been traced.

Conclusions

In general practice it is necessary to view the patient as a whole in his family and social environment. I try to locate the stresses and strains he is up against, and endeavour to make him appreciate his real problems. The neurotic tends to turn his back on difficulties and complains about his symptoms. I largely ignore his symptoms and get him to face up to his problems. Above all, I try to make him use his powers of reason in the matter. The intelligence of man has made him more anxiety-prone than other animals, but fortunately intelligence also points the road to recovery.

Summary

The need for psychotherapy in general practice is stressed. The family doctor's consulting-room should see a solution to most neuroses.

Methods used by the author are outlined and illustrated by cases and samples of his "patter."

I would like to express my appreciation to Dr. J. D. W. Pearce for his encouragement in the writing of this paper, and to Dr. Alice Cox, who taught me psychiatry.

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INTERNATIONAL LEPROSY ASSOCIATION
CONGRESS IN CUBA

The Fifth International Leprosy Congress was held in Havana, Cuba, from April 3 to 11. The previous international congresses were held in Berlin (1898), Bergen (1909), Strassbourg (1923), and Cairo (1938). At the Cairo meeting it was decided to hold quinquennial congresses, and the next was to have been in Paris in 1943. Unfortunately this was prevented by the war.

The initiative in calling this Congress, as also the Cairo Congress, was taken by the International Leprosy Association, a body formed in 1931 at a meeting of leprologists at Manila called by the American Leprosy Foundation. Two of the chief functions of this association are the publication of the *International Journal of Leprosy*, which is produced in America with the assistance of the Leonard Wood Memorial, and the arrangement of periodical congresses. Its office and secretary-treasurer have from the beginning been furnished by the British Empire Leprosy Relief Association in London. In 1946 the Association accepted an invitation from Cuba to hold the fifth congress in Havana, and the Cuban Government invited all countries to send delegates. Two hundred and twenty-nine delegates, including 74 from Cuba itself, gathered from 30 different countries. Important countries not represented were Russia, Japan, Australia, Pakistan, and Indonesia. By far the largest delegations were from the Latin countries: Spain 12, Portugal 4, Brazil 28, Mexico 16, and Argentina 15. There were 31 delegates from the U.S.A., but only 14 from the British Commonwealth. In Cuba itself leprosy is a serious problem and carefully planned steps are being taken to bring about control.

While the International Leprosy Association was chiefly responsible for arranging the scientific side of the Congress, the Cuban Government made all the local arrangements. The Congress met in a large school building, with dormitory arrangements for 60 delegates in the top story and a restaurant on the ground floor supplying food at or below cost price, while on the first floor there were offices and committee rooms, a post office, and exhibitions, together with a large auditorium with seats for 400 and interpreters for the four official languages—English, French, Spanish, and Portuguese. Delegates were supplied with earphones so that each could hear the speaker in his own native tongue.

The organization of an international congress on democratic lines is not easy. Apart from the language difficulty, all the preliminary arrangements have to be made by post, and the final plans must be compressed into the last few hours when the council members have arrived from the four quarters of the globe. In each of the seven working days of the Congress much time was occupied by social engagements. The plenary sessions for the reading and discussion of papers were concentrated into some 23 hours, about 100 papers being presented. The programme was divided into therapeutics, classification, research (including pathology, bacteriology, blood chemistry, serology, and immunology), epidemiology (including distribution and control), and sociology. Four committees were appointed (therapeutics, classification, epidemiology, and sociology) to discuss controversial questions and to frame resolutions for submission to the final plenary session.

Classification and Therapy

The chief interest centred round classification and therapeutics. Leprosy shows itself in protean forms, but the majority of cases can be divided into two types: (1) the mild form (tuberculoid), in which the patient has a comparatively high resistance to the infection, the nerves are more affected, the bacilli are few, and therefore the danger of spreading infection is *nil*, or slight : (2) the severe form (lepromatous) in patients with low resistance and enormous numbers of bacilli, who are therefore responsible for disseminating the disease. The difficulty arises in classifying a minority of cases which do not conform to these two types. Should they be divided on a clinical, histological, or immunological basis? The whole matter is still obscure and much further research remains to be done. Meanwhile it was agreed to divide cases into two main types : lepromatous (malignant or *gravis*), with "L" for its symbol, and tuberculoid (benign or *mitis*), with "T" for its symbol. In addition, an "indeterminate group" was recognized of cases which are "less stable and less certain with respect to evolution," their symbol being "I." The importance of the lepromin test was stressed in determining classification, as showing the degree of resistance to the bacillus.

The other subject which aroused special interest was sulphone treatment. These derivatives of diaminodiphenyl sulphone ("promin," "diasone" and "sulphetrone"), at first received with suspicion as another of the periodic leprosy "cures," are now universally recognized as a forward step in treatment and possibly in control. The most striking clinical results are in advanced, ulcerating, lepromatous cases with the nose obstructed and vision vanishing. But the real criterion from both the therapeutic and the control aspect is the diminution and disappearance of bacilli. In a large proportion of cases, however, disappearance is long delayed; and a few cases appear to be altogether recalcitrant.

The general opinion was that chaulmoogra oil, though still considered useful, is gradually taking a secondary place in all but the earlier cases of the mild type, but that sulphone therapy might be reinforced by the simultaneous use of chaulmoogra and other drugs. On the whole, however, it was generally agreed that the prospect of recovery from leprosy is much brighter to-day than it was a few years ago, though a vast amount of research remains to be done by both chemists and clinicians.

A discussion took place on the use of certain terms such as "leper" and "leprosy" which, because of their popular derogatory significance, may be offensive to patients. It was decided that the word "leper" should be avoided as much as possible, but that it was more important to educate the public regarding the true nature of leprosy and the need for sympathy with its unfortunate victims.

The generosity of the Government of Cuba, the energetic work of the local committee, and the hospitality of the Cuban citizens left nothing to be desired on the social side of the Congress. Something, too, was accomplished on the scientific side, though not as much as was desired or as some delegates had expected. But the main object of a Congress is after all what its name implies, "getting together," and from that point of view this meeting was well planned and of considerable value. The next International Leprosy Congress has been fixed for 1953, and will be held in Madrid.

MEDICINE AND PHYSICS

CONGRESS AT BRUSSELS

[FROM A CORRESPONDENT]

The formal opening of the Twenty-second Medical Congress took place at the Palais des Académies in Brussels on June 13. The Belgian Minister of Public Health presided, supported by the Rector of the Free University of Brussels and other dignitaries, and welcomed the many delegates from Great Britain, Canada, Czechoslovakia, France, Italy, the Netherlands, U.S.A., and Switzerland. On the occasion of this congress the Belgian Society of Physiotherapists, under its president Professor J. Michez, took the opportunity of calling together the first post-war international meeting on "medical electronics." The purpose of this meeting was to re-establish a body existing before the war known as the "International Association of Physiotherapy." It soon became apparent that the term "medical electronics" was not wide enough to embrace all the interests which the proposed association would serve. Dr. P. Bauwens proposed the name "The International Association of Physical Medicine," and this was favourably received. An *ad hoc* committee was formed to discuss the constitution of the new association.

Opening the first session of the meeting, Professor Balasse (Brussels) discussed the concept of the electron, linking it to the many classical theories of physics and developing from it the theories of corpuscular and wave motion. He concluded with a brief survey of the special applications of nuclear physics in medicine. M. Govaets (Liége) then described some of the biological effects of radioactive substances.

The third speaker, Dr. P. Bauwens (London), gave a concise account of his work on the study of action potentials in muscle. He described his own apparatus and his method of recording minute differences in electrical potential. Magnetic tape recording was used so as to store for subsequent analysis some of the irregular and transitory signals from muscles. His apparatus was built to a large extent from surplus war equipment.

Professor Dacos (Liége) in his lecture drew a parallel between electronic calculating machines using many thousands of radio valves and the human brain. The first session ended with a brief account of some of the results achieved by Dr. Sofia da Conceicao Quintino (Lisbon) in treating arteriosclerosis by short-wave therapy.

Electromagnetic Micro-waves

The second session was opened by Professor Rylandt (Brussels), who spoke on the significance of physical and biological electrotonus and described the action of polarizing voltages on muscle fibres and other body tissues. The remainder of the second session was devoted to lectures on terrestrial magnetism, climatology, and on the recording of ultra-violet rays from the sun. These papers were read by members of the staff of the Brussels Meteorological Observatory. The secretary of the meeting, Dr. L. Konings, spoke on the problem of atmospheric ionization and its relation to cosmic rays.

The third session was opened by Dr. Tomberg (Brussels), who described the different destructive effects of electromagnetic micro-waves. He showed slides revealing the destruction of capillaries by such waves. While mentioning briefly their use for destroying microbes, he concluded his talk by suggesting that recent developments had given us the means of producing such waves in lethal strength at a distance of 100 metres, and had thus brought nearer their application for warlike purposes. It was an odd reflection on human progress to learn that a mediaeval suit of chain-mail would afford good protection.

Professor Homes (Brussels) discussed the application of ultrasonic waves. He outlined the physical properties of these pressure waves at frequencies above 20 kc., and said that the science of ultrasonics as applied to medicine was still in its infancy. Much work remained to be done before quantitative results could be discussed in detail. Professor Casanova (Algiers) read a paper on the practical problems of amplifying electronically the feeble voltages and currents met with in electrocardiography and similar studies.

Professor Guckelberger (Zurich) showed a film demonstrating intramuscular and intravertebral galvanism. He had found that such treatment gave beneficial results in cases in which other

methods of physiotherapy and even bipolar galvanism had failed. Dr. Séguin (Paris) gave an account of his work on the biological applications of electromagnetic micro-waves. He demonstrated by slides the effect of these waves on the growth of various tissue cultures and gave details of their absorption by different kinds of body tissue.

Oscillographic Studies

At the beginning of the fourth session a note from Professor Coblenz (Washington) was read apologizing for his absence. Among other items, his paper on "the dosage measurement of ultra-violet rays" reported progress in developing a photo-electric cell for measuring the intensity of ultra-violet solar and sky radiation. Professor Cignolini (Italy) then gave an account of his work on determining the correct dosage to be used in short-wave therapy. Professor Arienti (Italy) presented a paper on his oscillographic studies of human motion. He described the arrangement he had devised to provide visual signals indicating the contact between parts of the feet and the ground while walking. These signals were recorded photographically and synchronized with the action potentials of the various muscles under observation. The information thus provided was of value in the treatment of patients suffering from the after-effects of poliomyelitis.

Dr. Bernard (Paris) described a novel method of treating lumbago and sciatica by the use of "dia-dynamic" currents. These are low-frequency, unidirectional, sinusoidal current pulses, and it was claimed that their use had effected improvement in the majority of cases. No ill effects of any kind had been observed over a period of one year during which this new technique had been tried in a Paris hospital. Professor Coppée (Liége) compared the characteristic excitability of nerve fibres to the properties of an electrical oscillating circuit. Dr. Maury (France) dealt with the study of electrical charges on the skin, and Dr. Burger (Utrecht) concluded the session with an account of his work on vector cardiography. He represented the electrical potentials due to the heart action by means of vectors and was thus able to record not only the amplitude of those potentials but also their direction relative to the body structure. His ingenuity in constructing a phantom of the human body out of clay deserves mention. This phantom was filled with a suitable electrolyte and an "electrical" heart was introduced to generate the appropriate electrical potentials. After substitution of other body structures, such as bones and lungs, by suitable electrically equivalent materials he was able to measure the distribution of electrical charges in the phantom. Such studies, he said, might afford valuable data in comparison with measurements on living tissues.

The proceedings of these four sessions of the "Medical Electronics" section of the Twenty-second Medical Congress will be published in full in *Acta Physiotherapica et Rheumatologica Belgica*.

EPSOM COLLEGE

The annual general meeting of the governors of Epsom College was held at 49, Bedford Square, W.C.1, on July 9, and the report of the council for the past year was unanimously approved.

Lord Leverhulme, who presided, spoke of the rising cost of education in all types of schools. The fact that there were at present 511 boys in the school—the highest on record—and that fewer than 20 had been withdrawn as a result of the increased fees showed that the value of an education at Epsom was appreciated by parents. Speaking of the agreement to take five boys a year from primary schools, in accordance with the recommendations of the Fleming Report, he said that it had become necessary for the school to be inspected by the Ministry of Education. Lord Leverhulme had no doubt that the inspectors would report that Epsom was sound in wind and limb and active in brain and intelligence.

The president said that the school was fortunate in having as a neighbour one who was a native of Epsom and at the same time a noted authority on education. He referred to Mr. Chuter Ede, the present Home Secretary, and expressed the delight of all on learning that he had consented to join the governing body.

PUBLIC HEALTH AFTER THE WAR

MINISTRY'S ANNUAL REPORT

In more spacious times the report of the Chief Medical Officer of the Ministry of Health, surveying the field of epidemiology and the more personal public health services, and the annual report of the Ministry itself, dealing with housing, local government, and the less strictly medical and more administrative side of the department, were issued as separate volumes at different times of the year. To-day the two reports are combined in a slender document of 200 pages.[1] This has the slight disadvantage that the two parts relate to different periods. Vital and medical statistics are prepared for calendar years and the annual report now issued covers 1946, whereas the administrative side of the Ministry measures its affairs according to the financial year and carries the story to the end of March, 1947. As a further complication, some of the medical figures, such as those showing the trend of short-term sickness, and the account of the cholera epidemic in Egypt and the precautionary measures taken here, relate to last autumn. With events moving so fast in the medical world, 1946 seems a long way back, and much of what is set out in the present report is only of historical interest.

Vital Statistics

The first complete post-war year was one of steady progress in public health. The birth rate (19.1), the highest for 22 years, repeated the pattern of the years immediately following the previous war, though not with so high a leap. In 1920 the birth rate went up to 25.5. The population of England and Wales in 1946 was estimated to be over 40 millions, a figure which it had not reached since 1939. Persons over 65 comprised 11% of the population, compared with 9% just before the war. Infant mortality (42.9 per thousand births) was the lowest on record. In the corresponding year after the first world war it was nearly twice that figure. Maternal mortality (1.43 per thousand births) also reached its lowest level. Ten years previously the figure was 3.19. The death rates for the principal infectious diseases were all down except for influenza (of which there was an epidemic early in the year) and whooping-cough, which with 93,000 cases and 808 deaths remains a stubborn problem in the epidemiological field. The noteworthy decline in the number of deaths from diphtheria—472, as compared with 2,861 in 1938—gave testimony to the effectiveness of the immunization campaign which began in 1941–2. The death rates for children from scarlet fever (there were only 43 deaths from scarlet fever in England and Wales), measles, and rheumatic fever were extremely low; this is attributed to the diminished virulence of current strains of haemolytic streptococci, though no doubt the improved care and nutrition of children are potent factors. During the early part of the year there was a recrudescence of smallpox, due to the heavy return traffic from India. Of the 56 cases reported, 14 were fatal.

Tuberculosis, though it is still responsible for nearly one-third of all deaths at ages 15 to 39, shows a remarkable improvement. The total number of deaths from all forms of this disease in 1946 was 22,847, only one-third of what it was eighty years ago when the population of England and Wales was only half what it is now. One feature is the recent increase in the mortality rate from tuberculosis among men over 65, due presumably to the reactivation of lesions which might have remained dormant but for the strains and stresses of war. A similar tendency has been observed in other countries. In Sweden there has been comment on the displacement of mortality towards the older age groups. This country has still some progress to make before it equals the figures for the United States and Canada or for the white population of South Africa.

On the use of streptomycin the report states that it is already clear that this new weapon varies greatly in its effects on different individuals and in different forms and stages of the disease, that it is in no sense a substitute for other forms of treatment, but merely an adjuvant, and that in view of its

[1] *Report of the Ministry of Health for the year ended March 31, 1947, including the Report of the Chief Medical Officer on the State of the Public Health for the year ended December 31, 1946.* London: H.M. Stationery Office. 3s. 6d. net.

limitations and potential dangers it should be used at present only under strict supervision.

The blot upon the record for 1946 is the spectacular increase in syphilis, explained by the return from overseas of millions of men of the age groups most likely to be infected. The number of new cases of syphilis among males attending the centres doubled as compared with the previous year, and the number of male cases of gonorrhoea increased by something like 75%. The incidence of female cases of syphilis rose only slightly, and those of gonorrhoea fell.

To glance at other diseases, there were substantial decreases in the mortality from dysentery and diabetes, smaller decreases in cerebrospinal fever, encephalitis lethargica, and pneumonia, and a very small increase in typhoid and paratyphoid fevers. Acute poliomyelitis was not the problem that it became in 1947. The number of cancer deaths registered was 75,407; in more than half these cases the site was the digestive organs and peritoneum.

This picture of the nation's health in 1946 has its gloomy patches, but it is encouraging for a year in which many of the unhappy effects of the war were still evident, a year of difficult readjustment and also of food scarcity, a year which saw the introduction of bread rationing, a measure avoided during the war. The clinical and other surveys undertaken by the Ministry suggested no particular ground for anxiety, but Sir Wilson Jameson writes:

"There is no doubt, however, that the dietary restrictions inevitably experienced by the large mass of the people produced psychological, if not physiological, reactions. The most vulnerable groups were adolescents and others engaged in heavy manual work without access to industrial canteens, and, most of all, mothers of families. . . ."

Short-term Sickness

The Government Actuary contributes a report on short-term sickness. During the war there was a sharp increase in short-term sickness, becoming general in 1942 and continuing until the middle of 1945, after which it diminished gradually, until by the autumn of 1947 the relatively low pre-war level was almost regained. The method of computation has been to take the average number drawing sickness benefit per 1,000 insured persons. If there is incapacity of longer duration it is assumed that this will for the most part relate to persons no longer on the books of employers. Taking 100 as the figure for 1936–8, the ratio in the third quarter of 1947 was 104 for men, 106 for spinsters and widows, and 83 for married women, these ratios being in each case the lowest since 1940 or 1941.

In another part of the Ministry's report, however, a somewhat different story is told. This gives the results for each month of 1946 of the social survey of adult sickness. During the spring and summer of 1945 there was a very pronounced fall in minor complaints—colds, influenza, respiratory illnesses—the fall being no doubt connected with the ending of the war, but such ailments again reached a high level by the end of 1946, and apparently throughout that year there was an increase in more serious illness among elderly women. A short table shows the number of medical consultations on account of certain diseases:

	Sex	Average No. of Medical Consultations in a Month per 100 People aged	
		16–64	65–
Affections of veins	M	0·2	1·6
	F	0·7	0·2
Rheumatism, all forms ..	M	3·1	7·8
	F	3·2	5·3
Heart and arteries	M	1·6	10·6
	F	1·2	6·4

The loss of working capacity in a month at ages under 65 caused by varicose veins was equal to about 1½ days per 100 people, and by affections of the heart and arteries about 2½ days. From all kinds of illness and injury the average monthly days lost per 100 individuals were 114 for men and 86 for women.

The year 1946 found the medical staff of the Ministry (who number, by the way, about 150, of whom some 20 are part-time) largely engaged in planning and discussions relating to the National Health Service Act. In the hospital field the year saw the running down of the Emergency Hospital Service and the bringing into focus of the new Regional Boards. A chapter of the report is devoted to the chronic sick, who occupy something like 70,000 beds in the hospitals of England and Wales. The report urges that more could and should be done to rehabilitate a large proportion of these patients, at least to the extent that they no longer occupy hospital beds.

"Doctors and nurses treating the chronic sick should not adopt a defeatist attitude, but should try to do as much as possible in rehabilitating persons who may still have some years of useful life before them."

The new Public Health Laboratory Service, which is the permanent reincarnation of the emergency service operating during the war, is the subject of a chapter by Prof. G. S. Wilson. It is hoped by means of this service to form an epidemiological network superior to anything yet experienced in this country.

In connexion with the insurance medical service attention is drawn to the rise in the cost of insurance prescribing. In England an average of about 4½ prescriptions were issued per insured person in 1946, a slight decrease compared with the previous year, but the average total cost per prescription increased by 7.4%, due largely to the use of expensive drugs such as penicillin, the sulphonamides, and synthetic preparations.

Other interesting matter in the report concerns the National Blood Transfusion Service, the World Health Organization, port health administration, and the work of the Ministry in housing, water supply, and sewage disposal. The most up-to-date contribution is a description by Dr. L. H. Murray of the cholera outbreak in Egypt and Syria towards the end of last year and of the travel restrictions and prohibitions imposed by other countries during the outbreak. Thanks to the effectiveness of the measures taken not a single case occurred in Europe or on board ship or aircraft, but Dr. Murray is evidently of opinion that indiscriminate and unnecessary impositions in excess of international agreements were placed on travellers and merchandise which had little effect beyond creating a temporary chaos.

NUTRITION OF ATHLETES

NUTRITION SOCIETY CONFERENCE

A conference on "The Nutrition of Athletes" was held on July 17 at the Royal Society of Medicine, with Professor J. R. Marrack in the chair.

Dr. Philip Eggleton spoke on the physiology of muscular activity. Studies had been made on intact animals, notably man, on the surviving muscles of cold-blooded animals, and on muscle extracts from warm-blooded animals. A robust man could metabolize carbohydrate so as to derive 4,000 calories daily above his basal metabolic rate, but although carbohydrates were the most direct source of energy most heavy workers, such as miners, preferred meat and fat. Meat provided B vitamins; it was also a source of creatine, which was absorbed by the muscles, temporarily checking the excretion of phosphate. According to Hill a trained athlete might use up to 4 litres of oxygen per minute in violent exertion, but for constant activity only about 1 litre per minute was possible. To provide for the maximum consumption of oxygen the heart worked at eight times its resting capacity, achieving this by increasing both the rate and the volume of blood pumped at each beat. The athlete, however, might use energy at up to 100 times the resting level, and in doing so might incur an "oxygen debt" of up to 16 litres. When such large debts were incurred the underlying biochemical change was the conversion of glycogen to lactic acid. With smaller debts, however, no lactic acid was formed, and the energy was presumably derived from the decomposition of creatine phosphate. The deciding factor in athletic events lasting for minutes was the efficiency of the heart and lungs in supplying oxygen, but in events lasting only for seconds a low viscosity in the muscles was the most important factor.

Mrs. Dorothy M. Needham, F.R.S., said that the main sources of energy in muscular action were the conversion of glucose to lactic acid and the breakdown of creatine and adenosine phosphate. These reactions presumably occurred in series, leading finally to the conversion of adenosine triphosphate to the diphosphate. Adenosine phosphate had been

found to cause physical changes in the muscle protein myosin. The presence of actin, another muscle protein, emphasized these changes. Muscular contractions might be induced by a "folding up" of the myosin molecule.

Group-Capt. C. A. Rumball described the selection of air crews. Candidates with low weight-to-height ratios had usually poorer expectations of health than heavier men, but even when a stone under weight cross-country runners were a notable exception to this rule. They might also be perfectly healthy even with diastolic blood pressures of rather more than 90 mm. Hg.

Dr. Geoffrey H. Bourne discussed the value of vitamins for efficient muscular effort. Vitamin B was directly concerned in carbohydrate metabolism in the decarboxylation of pyruvic acid, while it was probable that most other B vitamins were also implicated in some phase of muscular metabolism. Could it be assumed that the athlete's requirements for B vitamins were raised in parallel with his increased metabolic activity? If so were his requirements for these factors satisfied by an ordinary diet? Trials in which extra vitamins had been administered with a view to improving physical performance had given conflicting results, but he thought Olympic athletes might well be given additional B vitamins as a precaution. Present views on the nutrition of athletes, and the obsession for large amounts of protein in the form of meat, seemed to him to be fifty years out of date.

Diets for Athletes

Sir Adolphe Abrahams questioned whether athletes required much extra food and, if so, whether any special foodstuffs were desirable. Trainers had emphasized the value of meat, particularly beef, as the mainstay of the athlete's diet, but the reason for this preference was obscure. The value of the moderate use of alcohol had also to be considered. Genuine attempts must be made to reconcile the results of scientific experiments with knowledge gained by practical experience in feeding athletes, but it was highly undesirable to justify unorthodox methods of nutrition by pseudo-scientific explanations. Many athletes were highly imitative in their dietary habits. If some brilliant performer adopted a bizarre diet and won his event in spite of his tastes, others would attribute his success to the food he ate, and promptly follow his example.

Sir Adolphe commented on Schenk's report on the enormous amounts of food consumed at the Berlin games in 1936. The total average daily consumption of 7,300 calories seemed to be incredibly high, and corresponded to an output of work equal to running 100 miles at moderate speed, or 5–6 hours of more violent exercise. Nothing approaching this amount of work was ever expected of Olympic athletes while in training. Thus a sprinter, visiting the track twice daily, might on each occasion make five or six bursts of 20–60 yards from his starting blocks, and then stride 150 yards at three-quarter speed. His energy consumption for these activities should not total more than 400 calories. Marathon competitors might use up more energy in walking 10–15 miles daily, with occasional long runs, but they would still fall far short of justifying Schenk's report of their calorific requirements.

It might seem remarkable that in spite of their more strenuous training long-distance athletes usually ate much less than their sprinting colleagues, and the explanation of the desire of some athletes for a liberal meat diet probably lay in the personal "make-up" of the sprinter type. Long-distance athletes were usually placid and phlegmatic, and were prepared to suffer toil and discomfort in any weather for hours on end. Sprinters, oarsmen, and others taking part in shorter events were more "highly strung" and restless in disposition, and often found the rigours and deprivations of training very irksome. Under these circumstances plenty of appetizing food, perhaps with some beer and an occasional bottle of champagne, helped to ward off "staleness," since this bugbear of all athletes seemed mainly mental in origin. Possibly the liberal diet also supported a higher metabolic rate.

Animal protein was enjoyed by athletes as much as by most other people, but apart from its psychological value it was not clear to what extent it was really needed. The performances of the great Finnish runner Nurmi had been quoted as evidence that athletic prowess was not inconsistent with vegetarianism, but it must be remembered that he consumed liberal amounts of milk and other dairy products. It might be expected that dosing with sugar would be valuable in long races in which the glycogen reserves of the body were exhausted, or in short races in which glucose was used up more rapidly than it could be derived from glycogen. Attempts to confirm this conclusion, and to test the value of dosing with vitamins and other nutrients, had been made difficult by the great susceptibility of athletes to psychological influences. Dosing even with a placebo might sometimes improve the athlete's performance merely by increasing his confidence in his own ability.

Sir Adolphe finally suggested that the causes of the steady improvement in all records for athletic events during the last fifty years were to be found not in better nutrition but in superior methods of training and increased competition. Really great athletes did not seem to care what they ate. In training for past Olympic games the British teams usually subsisted on quite ordinary diets, at only one-third to one-half of the average level of calorie intake reported by Schenk.

Dr. Herxheimer said that athletes, like mountaineers, might have a great desire for sugar after exertion. Major G. C. Arneil agreed that nervous strain might greatly increase the desire for food, on the evidence of the intense hunger caused by parachute jumping.

Individual Variations

Dr. Neville Leyton emphasized the widely different food consumptions of individual competitors in the same events. In long events the extra calorific output necessitated might be considerable. A boat race of 4½ miles might use up 500–600 calories in twenty minutes; a marathon race 1,800–2,000 calories in two and half hours; while a long set of tennis might require 1,200 calories. After such exertions, moreover, several hundred more calories might be expended during the next twenty-four hours before the pulse rate returned to normal. Training must continue for some months, and must aim at bringing the competitor to the peak of his form on the day of his event. The diet should contain bread, meat, eggs, potatoes, greens, and plenty of oranges and fruit of all kinds to prevent constipation. Tea and coffee were best omitted. In preventing staleness an increase in the fat content of the diet, with a reduction in protein, might be useful. On the day of the event most competitors preferred to race on an empty stomach, but others felt faint, or even vomited, unless they had recently taken a little food. Glucose, barley sugar, or candy might be useful between events.

Dr. R. D. Lawrence stated that in the present games competitors were unable to obtain glucose tablets, and had asked the Society to use its influence to make adequate supplies available. It was decided, however, that no action should be taken.

Professor Marrack, summarizing the day's proceedings, referred to the air of mystery which in the past had surrounded athletes' diets. At school he remembered a boy who was reputed to train on "raw beef and gunpowder." Later he had studied a famous book which recommended a diet from which all sources of vitamin C seemed to have been rigorously excluded. Then Emden, realizing the importance of phosphoric acid in the metabolism of muscle, had advocated sodium phosphate to increase stamina, although its main value was as an aperient. Possibly too much had been said about the production of energy and too little about its application. The high-jumper must not only raise his centre of gravity as far as possible from the ground but by intense muscular co-ordination must arrange that no part of his body was very far below his centre of gravity at the precise moment of crossing the bar. In regard to diet the two chief points seemed to be the provision of enough food and the choice of food which could be readily digested. No competitor with indigestion could hope to excel in the Olympic games.

A problem which may be of considerable importance to public health is foreseen by the United States Department of Agriculture. Entomologists working for the department have developed a strain of D.D.T.-resistant house flies. The strain is now in its 35th generation, and flies in each successive generation have required increasingly greater amounts of D.D.T. to kill them. Though it has been reported in some parts of the United States and in other countries that house flies are becoming more difficult to kill with recommended applications of D.D.T., so far as is known no such D.D.T.-resistant strains of house flies occur in nature.

Reports of Societies

RECOLLECTIONS OF LISTER

Some interesting personal recollections of Lister were brought forward at a meeting of the Section of History of Medicine of the Royal Society of Medicine on June 2.

Dr. H. C. CAMERON described how his father, the late Sir Hector Cameron, was a house-surgeon at Glasgow in the 'sixties when Lister was there, and later was Lister's assistant and remained his friend throughout life. Dr. Cameron said that his own contact with Lister was occasional and fleeting, and occurred when he was very young, but he had listened to Lister's talk in the intimacy of his own fireside, and he was brought up in a home where Lister's name was revered and where all that concerned him was of vital interest. His first recollection was in 1886, when Lister paid a few days' visit to his father. He remembered him standing, teacup in hand, with his back to the fire. In what he could recall of Lister he was nearly always standing. He stood, not because he was restless, but because he was absorbed in what he was saying or what was being said. He was never awkward or ill at ease. Dr. Cameron spoke of Lister's quietness, his precision, his reticence, his courteous austerity, though in the wards he had usually some little jest which he shared with his patients. Once a small urchin in the wards, as his eyes followed Lister's movements, confided to a bystander, "It's us wee yins he likes best, and next it's the auld women." The "wee yins" and the "auld women" knew nothing about great figures on pedestals, and his response to them was easy and natural.

Queen Victoria's Abscess

Dr. Cameron went on to say that after he became a student at Guy's in 1902 he liked to remember that Lister twice asked him to dinner. On the first occasion his father was staying with Lister at Park Crescent; on the second he was alone, and Lister told him in somewhat greater detail than was given in Godlee's book the story of the first use of rubber drainage tubes in surgery. He said that he was hurriedly summoned to Balmoral to treat Queen Victoria, who had developed an abscess. On arrival he made the necessary incision and inserted a wick to help the drainage. The result was not satisfactory; her temperature rose and she suffered great pain and discomfort. As he walked in the grounds of Balmoral—whenever Lister had a problem to settle he walked, pondering the situation—he thought of a possible device. He had brought with him a primitive form of his carbolic spray—Richardson's "atomizer"—to which was attached a long piece of rubber tube. Returning to the castle, he cut off a suitable length of this rubber tube and soaked it all night in a 1 in 20 solution of carbolic acid, using a soap dish in his bedroom for the purpose. In the morning he inserted it and found that it answered its purpose so well that recovery quickly followed. "If," added Lister, "you ever hear anyone complaining that in hospitals patients are sometimes experimented upon, you may think of that story, though you must not tell it."

To his wife, Agnes Syme, a gay and gracious spirit, Lister owed a great debt. Dr. John Brown, author of *Rab and His Friends*, spoke at Lister's wedding and said of Lister that he believed he would go to the very top of his profession, and as for Agnes, she had a "bit of heaven about her." Lister without his wife was always apt to be oblivious of time. It was no unusual thing when there was interesting research afoot for him to forget professional appointments altogether. Agnes helped him in many practical ways, as well as by her calm confidence and buoyant spirit which made light of the setbacks of the moment. She had also a keen sense of humour and unfailing high spirits, and the unpunctuality and over-careful preparation of her husband never made her impatient. He was not the same man after her death.

A characteristic episode was Lister's diligent search for an absorbent dressing. After combing the shops of Glasgow he eventually found what he wanted in the book trade, in bookbinder's muslin, a fabric which could be impregnated with carbolic acid. But he still wanted a suitable material for insertion between the seventh and eighth layers of gauze to spread the discharges evenly over the antiseptic pad, and this he found in the hat trade, in a hat lining which, to distinguish it, he coloured pink. This is the material sold to-day as jaconet, and generally dyed pink, as Lister originally directed.

Dr. Cameron read extracts from some of Lister's letters to Sir Hector Cameron showing how great was the havoc wrought in his state, both of body and mind, by the loss of his wife, whom he survived twenty years. "In his solitary old age all the unhappiness, misunderstandings, and ridicule of the past occupied his mind far more than the applause of nations and his ultimate triumph." His last letter to Sir Hector was dated April 23, 1911: "I am very grateful for your kind birthday greetings. You will excuse me not saying more."

Dr. Cameron concluded: "It has been said that there is but one division to be made in the history of surgery—surgery before Lister and after Lister. . . . It is right that his name should be revered and his work known, and right that we should do what we can to picture him to ourselves in his ordinary daily life, ceaselessly experimenting, unendingly preparing, and always beloved."

Letters of a Young Disciple

Dr. E. ASHWORTH UNDERWOOD followed with an interesting short paper in which he quoted from some letters of a young student who was in Lister's class and living in his house during the year of Lister's appointment to the chair of surgery at Glasgow (1860) and the years immediately following. The student was Marcus Beck, whose father was a paternal cousin of Joseph Lister. Marcus Beck, who became a brilliant surgeon and inspiring teacher, was born in 1843, entered the university of Glasgow in 1860, qualified in 1865, became assistant surgeon at University College Hospital, teacher of operative surgery in 1875, and professor of surgery in 1885. During the first three years of his studentship he lived with the Listers at 17, Woodside Place. The collection of letters to which Dr. Underwood has had access—the letters of a student to his family—number 34. Among them was an enthusiastic description of an operation by Lister at Glasgow Royal Infirmary on Nov. 30, 1861:

> "The operation [lithotomy] was one of some difficulty, and he was somewhat nervous about its success during the week. But on the morning of its performance he was perfectly cool and comfortable. The theatre was crowded from the roof to the area, and there were several practitioners from the city present. I was awfully excited, as I knew even the best men might sometimes find difficulty in that operation, and Joseph Lister's reputation as a surgeon depended in some measure upon his success. But my fears were soon quietened by seeing him perform the operation to the admiration of all present in 1¼ minutes. It was a most beautiful sight, and one I could watch for an hour with pleasure if it could be repeated. He was tremendously applauded by the assembled multitudes. He then performed an amputation of a big toe with its metatarsal bone with similar success. When he appeared at his surgery class the same morning he was received with tremendous roughing and clapping, showing the approbation that the students had for his magnificent performance."

In many other letters Beck referred to Lister's operations, all of which were done "beautifully." In 1862 he described how they did six cases in one day. These letters, of course, were all too early for any references to Listerism. Many other sidelights on Lister appeared in this correspondence. On Sundays Beck's usual recreation was a walk with Lister during which they did some botanizing. Beck obviously enjoyed himself thoroughly. On January 19, 1862, he wrote: "The professor [Lister] is issuing invitations for his dinner party—it is only 12 days to it. My heart palpitates at the thought. I intend to do a swell with a white tie for the first time." From the very first the hero-worship shone from these faded youthful letters. In one of the earliest he said that he spent an afternoon helping Lister to unpack his museum. Beck was overjoyed when Lister got him—a youth of 18—to help him syringe ears or assist in operations on the foot or in a squint case. In a letter in 1862 he said that the professor was getting on beautifully in practice, and that altogether he made £1.000 a year, and this was increasing daily.

Particular interest attached to Beck's comments on Lister's use of chloroform. Lister was extremely interested in this subject, as was fitting in a man who as a student had attended Liston's first public operation under chloroform at University College in 1846. Lister was the first to recommend pulling

forward the tongue to relieve stridor. From these letters and other sources it was evident that Lister prided himself on the good results which had been obtained in Scotland with chloroform by the open method. Down to as late as 1870 there had been no deaths under chloroform in Edinburgh Royal or Glasgow Royal, though according to Beck there was very nearly a death in 1861 at Glasgow, which was averted by the prompt intervention of "J. L.," who was only an observer at the operation.

Some brief discussion followed these two papers, and Mr. VERNON CARGILL, who was house-surgeon to Lord Lister and surgical registrar at King's College Hospital, added some further reminiscences.

CARCINOMA OF THE CERVIX

Surgery and Radiotherapy

At a meeting of the Edinburgh Obstetrical Society on May 19, with the president, Dr. W. F. T. HAULTAIN, in the chair, Mr. CHARLES READ read a paper on the role of surgery in the treatment of carcinoma of the cervix.

Mr. Read said that there was a division of opinion on the relative merits of irradiation and radical surgery in stage I and stage II cases. There was little debate in respect of stage III and stage IV cases, which were generally unsuitable for surgery. While in many clinics the Wertheim operation was abandoned when radiotherapy was generally established, at the Chelsea Hospital for Women this operation had been performed continuously since Mr. Bonney introduced it in 1907. From the published statistics even the surgical enthusiast had to admit that the results of radiotherapy compared favourably with those of surgery; but the question might well be raised whether any of the fatalities after radiotherapy could be avoided by judicious surgical procedure. Mr. Read suggested that there were seven indications for surgery in carcinoma of the cervix. These were: (1) radio-resistant growths proved either clinically or cytologically; (2) columnar-celled carcinoma of the cervix; (3) vaginal vault stenosis; (4) the presence in addition of large fibroids or ovarian cysts; (5) an associated salpingitis; (6) refusal of irradiation by the patient; and (7) pregnancy in the presence of a cervical carcinoma. After discussing each of these indications separately, Mr. Read considered the Wertheim operation after previous irradiation. Although this did increase the technical difficulties the operation was justifiable in proved radio-resistant cases, experience in the Chelsea Hospital showing a five-year survival rate of 44.4% in 34 stage I and 20 stage II growths.

From a study of material obtained at the Wertheim operation, at necropsy, and at the operation of lymphadenectomy without removal of the uterus Mr. Read had come to the conclusion that the rate of gland involvement was approximately: stage I, 20 to 25%; stage II, 30 to 35%; stage III, 40 to 50%; and stage IV, over 60%. From these figures it would appear that treatment by radium alone, using vaginal applicators only, could never hope to give adequate radiation to the lymphatic field. It therefore seemed that there was a place for iliac lymphadenectomy in stage III cases which had been treated locally by radium, and that such a procedure could well be extended to include stage II cases and selected cases of stage I growth.

Mr. Read discussed the Wertheim technique with particular reference to the carrying out of lymphadenectomy early in the operation, leaving the iliac and obturator lymph node chain attached to the uterus throughout. He stressed the need to remove at least the upper half of the vagina, and emphasized the value of plasma or blood transfusion. He recorded an incidence of post-operative urinary fistulae of 3.1%.

Limitations of Radiotherapy

Professor ROBERT MCWHIRTER said that at one time there had been sharp differences of opinion between surgeons and radiologists, but increasing experience had narrowed the area of disagreement considerably, and further study might yet obliterate it. His own opinions were governed not only by technical details but also by certain general principles. Of these he placed first the need to consider each case of cancer individually, and to treat the patient and not the tumour. The prime object should be to make her more comfortable; any treatment which cured the cancer without achieving this end was a failure. The maximum distance from the cervical canal at which radium might be expected to be effective was 3 cm. Growths which extended beyond that distance were not susceptible to radium. The dosage varied for different tumours and some might justifiably be described as radio-resistant, but the most important limiting factor in regard to treatment was the restricted striking distance of radium. Radio-sensitivity was a variable factor, and at the moment the opinion of the histologist was of limited value in its recognition; a new approach to its histological study was necessary. Observation of the effects of irradiation in successive biopsies might possibly prove a valuable field of investigation. It was difficult to envisage any great increase in radium range in the near future, apart possibly from improved applicators with more efficient screening of the bladder and rectum. It was the need to avoid damage to these organs which chiefly restricted the dosage.

When *x* rays were first used to supplement radium treatment the whole pelvis was irradiated. Not uncommonly necrosis developed in tissues which had already received a high radium dosage. It became obvious that if *x*-ray therapy was to be really beneficial it must be closely related to the radium treatment. Patients with cells just outside the effective range of radium were far more likely to benefit from *x* rays than patients with cells far out in the pelvis, for these latter advanced cases frequently had distant metastases as well. In order to try to align the two methods of treatment the *x*-ray fields were planned from radiographs showing the position of the radium in the uterus, but when vaginal packing was introduced the uterus might be greatly displaced to one or other side of the pelvis and it might also be displaced upwards to a considerable extent. These difficulties could to some extent be overcome by the use of special radium applicators such as those devised by Richards, of Toronto. *X*-ray therapy alone would remain an unsuitable method of treatment until much more powerful apparatus became available.

Professor McWhirter believed that surgery was the most effective method of treating cancer when it was early and localized. Unfortunately, by the time patients sought advice the condition was often no longer suitable for treatment by surgery. In criticism of some of the claims made for surgical treatment he pointed out that a number of factors operated to produce a favourable selection of cases. For example, the patients submitted to surgery were usually in good condition, not unduly obese and not too old, and were stage I or early stage II cases. Because extensive lymphadenectomy must always remain a piecemeal dissection, he thought it unlikely that this operation would greatly improve the eventual prognosis. He did not believe that an inoperable case could ever be rendered operable by preliminary irradiation, although he believed improvement might be obtained by means of post-operative irradiation with very high voltage *x*-ray apparatus. In operable cases pre-operative irradiation might be of benefit.

In a review made some time ago the five-year survival rate in Edinburgh was 29% of all cases referred. In the cases most recently analysed the five-year survival rate was 34%. In the calculation of these survival rates no case was omitted from the total for any reason whatsoever. He believed that these figures might be improved by the use of surgery where the disease was early and where the tumour was shown to be radio-resistant, and he thought a serious attempt should be made by histologists to recognize resistant tumours so that the appropriate treatment might be given initially.

Mr. Read's paper was further discussed by Dr. DOUGLAS MILLER, Dr. E. C. FAHMY, Dr. CLIFFORD KENNEDY, Dr. J. C. CLARK, Professor MARGARET FAIRLIE, Dr. R. DE SOLDENHOFF, and Professor R. J. KELLAR.

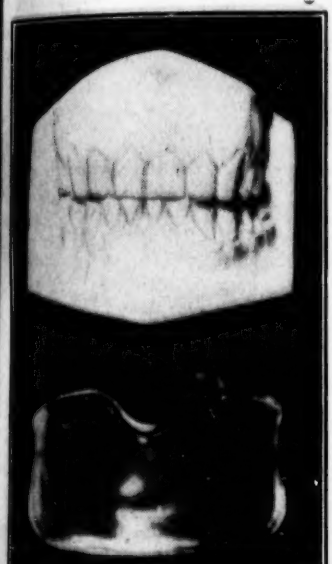
The Minister of Health, after consulting the Civil Nursing Reserve Advisory Council, decided to accept their advice that the Civil Nursing Reserve should cease from July 5. Its effective members have been absorbed into the general establishment of nurses in the National Health Service. All members in employment on the appointed day retain their existing salaries until these are overtaken by increments on the scales of the ordinary nursing staff. Nursing auxiliaries may retain their present title and pay so long as there is no comparable grade in the general nursing establishment to which they could transfer.

Preparations and Appliances

A MOUTH SCREEN FOR USE AFTER ADENOIDECTOMY

Professor E. MATTHEWS, honorary prosthetic dental surgeon, Manchester Royal Infirmary, writes: At the clinical meeting of the Manchester Medical Society held in June, 1947, I demonstrated the use of the mouth screen or oral shield as a form of follow-up treatment after the removal of adenoids—the object being to correct the mouth-breathing habit. I found a considerable interest taken in this simple appliance, and have since had requests from several doctors for advice for their own children.

The appliance can easily be made from a sheet of "perspex" or celluloid moulded to shape, or from the moulding powders used in denture construction. The only requirement is an impression of the labial surface of the upper and lower teeth as far back as the first molars. The idea is by no means a new one, and some dental surgeons have for long used the mouth screen as a simple but effective orthodontic appliance for the treatment of over-prominent front teeth. The appliance is of course only used at night, and functions as a valve. It prevents mouth-breathing, since in the act of breathing in through the nose it moves into contact with the gums, thereby acting as a seal. The inward movement is conditioned by the slightly reduced pressure (below atmospheric) in the oral cavity during the act of breathing.



Professor Sprawson (*Brit. Dent. J.*, 1947, **83**, 231) states: "Many still appear to think that if the nasal obstruction is removed that is all that need be done, but experience does not bear this out. During the day nasal breathing may be re-established if the child is admonished when seen with its mouth open, but it invariably reverts to mouth-breathing at night, and unless treated this habit will persist throughout life." He also comments on the association of an anterior gingivitis with the mouth-breathing habit, and insists that "it is a serious complaint because it is almost always a precursor of parodontal disease, with its oral sepsis and early loss of teeth."

There are therefore important dental and developmental reasons why every care should be taken to see that the mouth-breathing habit is properly cured after the immediate cause—adenoids—has been removed. It would be interesting to know what steps are ordinarily taken by one's E.N.T. colleagues to terminate this habit. The use of sticking-plaster over the lips is an obvious but usually unwelcome solution of the problem, and therefore for the majority of cases I subscribe to Professor Sprawson's dictum that "every child who has the adenoid operation done needs this treatment (oral screen), as otherwise the habit persists."

An attractive booklet on first aid entitled *A B C of First Aid* has been written for the British Red Cross Society by Air Marshal H. E. Whittingham. Line diagrams on the left-hand pages illustrate simple first-aid manœuvres such as artificial respiration, removing a foreign body from the eye, splinting limbs, and controlling bleeding. Explanatory notes are tabulated in alphabetical order on the right-hand pages, and at the end there is a list of the commoner poisons, the symptoms they cause, and the first-aid treatment required. The pamphlet will be useful in the home, on the highway, and in industry.

Correspondence

Golden Jubilee of the R.A.M.C.

SIR,—It was gratifying to find that our modest *Scrapbook* should have been deemed worthy of a notice in your columns, and I should like to assure Dr. W. C. Souter (July 10, p. 107) and your readers that we in the Corps are by no means insensible of the great part played by the B.M.A. in the shaping of our destiny. During the compilation of the *Scrapbook* I read with the greatest interest Sir Alexander Ogston's "bombshell" and its many repercussions. We felt, however, that it would more suitably be included in some authoritative history of the Corps than in a very ephemeral light-hearted publication which included among its readers many hundreds of young recruits.

A further reminder of the contribution made by the B.M.A. to the efficiency of the R.A.M.C. has been provided by a correspondence which I have been having with Dr. C. H. Milburn, of Harrogate, who is the sole survivor of the special Committee on Army Medical Reform (1896) and who formed one of the deputation to Lord Lansdowne which resulted in the formation of the Corps 50 years ago. He has been good enough to lend us a copy of the Draft Report as submitted to the Parliamentary Bills Committee and many other documents of absorbing interest, extracts from which we hope to quote in an early number of our Corps magazine. In this number, too, we will endeavour to do belated justice to the work of Sir Alexander Ogston. That the B.M.A. of those days certainly did not "pull its punches" is very obvious from the following quotation:

"We have thus considered how the Army Medical Service satisfies the four essential conditions which we laid down at the outset. *It satisfies none of them.* In other words, it is at present in the most unsatisfactory condition. Justly discontented, with duties and responsibilities second to none in importance, but without the Army status necessary for their proper fulfilment, exposed to hardships and dangers in excess of those in any branch of the Army, yet without the military recognition which others receive; with an undue amount of foreign service, with no opportunity for advancing their professional knowledge, or the slightest encouragement to do so, with an anomalous and disjointed relationship between men and officers, and in face of indefinite postponement of reform, it is no wonder that the British Army Medical Service is on its way to extinction. It is impossible for anyone acquainted with this state of things to regard with equanimity the prospects of a great war. If such a calamity were to overtake us it is difficult to see how we could avoid the utter collapse of the medical arrangements. A spectacle of misery and mortality to equal which we must look back to the horrors of the Crimea would not be a matter for astonishment. . . . Only two forces seem ranged against Army medical reform: (1) unwise economy; (2) unreasoning prejudice at the War Office."

In this our jubilee year it is especially fitting that we should remember that the efficiency of our Army Medical Service and indeed the victorious outcome of two world wars were due in large measure to these far-seeing and forceful members of the B.M.A.—I am, etc.,

R. E. BARNSLEY,
Major-Gen. (ret.),
Hon. Sec. R.A.M.C. Jubilee Committee.

R.A.M.C. Depot,
Cookham, Hants.

Sir Patrick Manson

SIR,—As former pupils of Sir Patrick Manson and as members of the original London School of Tropical Medicine which he founded in 1899 we would like to thank you for your reference (July 10, p. 82) to the predominant part that he then played in the elucidation of the transmission of malaria, for by so doing you have placed this subject in its proper historical perspective.

We have always regarded his paper in your *Journal* in 1894 (2, 1306)—"On the Nature and Significance of Crescentic and Flagellated Bodies in Malarial Blood"—as the starting point of the modern knowledge of malaria and as one which led to the successful accomplishment of a great venture without which the working out of this intricate problem could hardly have been achieved at that time.—We are, etc.,

GEORGE CARMICHAEL LOW.
PHILIP MANSON-BAHR.

London, W.1.

The B.B.C. and the N.H.S.

SIR,—The B.B.C. could hardly allow the inauguration of the National Health Service to pass without contributing a pep-talk. This took the form of a dramatic discussion in the Light Programme on July 6 at 8.30 p.m. For the benefit of those who missed this enlightenment and inspiration here is a summary.

First we heard a mother's dread of the voluntary hospitals transformed into joyous confidence in the same hospitals nationalized. Then, the existence of the voluntary hospitals being conveniently forgotten, we heard how the wife of a gas-works employee had for years refused surgical treatment to her varicose veins because she could not afford the surgeon's fee.

The hero of the piece was a surgeon basking in his own self-righteousness, high-mindedness, and other-worldliness. To him came a Mr. Venables, intended to be a typical *nouveau riche*, or no doubt his modern equivalent, a Tory lower than vermin. He wanted to know whether he should remain a private patient or become a public patient. The hero delivered a moral lecture in the best Pecksniffian manner. But, though eloquent on the evils of the past, he hedged deplorably when questioned about the future. Mr. Venables, seeing through this tirade, decided to remain private. His decision appeared to me to show his astuteness, but the intention of the script writer was evidently the opposite. Incidentally, we heard the old fiction, so sedulously propagated by the Socialists, that the *malade imaginaire* is found exclusively among the wealthy and that the poor suffer only real illness.

Playing opposite to the hero was the villain, personified of course by the medical superintendent. Trouble had arisen in the bad old days over a case of torticollis, a woman with her neck "twisted right round" (presumably through 180°, not 360°). The superintendent was for discharging her, but the hero nobly stood his ground, thereby risking his career in the interests of humanity. Baffled, the superintendent suggested exercises. Again "No" from the hero, who, however, had no suggestion to make except masterly inactivity. The problem was solved by the patient's suddenly dropping down dead. "Tuberculosis of the atlas." Curious that *x*-ray examination twice failed to reveal any abnormality in a neck with the head facing the wrong way. The Light Programme is hardly a place wherein to expect logic. The lesson appeared to be that under the old dispensation a patient with torticollis of unknown cause was discharged from hospital if she survived exercises, but under the new would be left to die in her own way. Believe it or not, the piece was intended to be serious and good propaganda. It is a saddening reflexion that despite the millions spent on its education democracy should be considered, and no doubt is, capable of believing such nonsense.—I am, etc.,

Cambridge. FF. ROBERTS.

Acute Intussusception

SIR,—The article by Drs. Brenda Morrison and Donald Court (April 24, p. 776) has brought to mind the six cases of acute intussusception in children and young adults which came under my care during 1947.

Case 1.—A schoolboy, aged about 14 years, had abdominal pain and vomiting of 28 days' duration. Four days before admission each attack was accompanied by defaecation, and the patient had ten motions the day before admission. Helminthiasis was diagnosed and he was given medicine, but did not pass any worms although the bowel moved thrice. The abdomen was rigid and painful to the touch. At operation an entero-colic intussusception about eight inches long was discovered in the left splenic flexure, surrounded by inflamed and adherent omentum. It was irreducible, and as there was apparently no obstruction it was decided that there was no need for any further interference, and the abdomen was closed. The patient gradually recovered and was discharged fit from hospital 24 days after admission, the intussusception having undergone spontaneous cure.

Case 2.—A farmer, aged about 30 years, complained of abdominal pain and vomiting seven days before admission. There was no obstruction and the bowel moved once or twice daily; indeed, it moved five times on the 5th day of admission. Palpation revealed a sausage-shaped abdominal tumour across the epigastrium. At operation an ileo-caecal intussusception was discovered in the epigastrium and was reduced by milking. The caecum and appendix were oedematous. The patient made an uninterrupted recovery. He was discharged 34 days after admission.

Case 3.—A male child, aged 10 years, had abdominal pain and vomiting seven days before admission. In this case also there was no obstruction as the bowels opened three or four times daily in hospital. The abdomen was soft and a sausage-shaped tumour was palpated. An ileo-caecal intussusception was discovered and reduced at operation. The patient made an uninterrupted recovery and was discharged 13 days after admission.

Case 4.—A male child, aged about 12 years, had a history of abdominal pain and vomiting of one month's duration before admission. The patient was very emaciated and dehydrated, due to excessive vomiting. The abdomen was rigid and tender, and the patient was constipated. At operation an irreducible entero-colic intussusception was discovered, with the omentum and the small intestine wrapped round it. As there appeared to be an obstruction in this case a short-circuit operation was performed with a view to resecting the intussusception later, but the patient died 12 hours after the operation.

Case 5.—A schoolboy, aged 8 years, was admitted with pain in the abdomen and vomiting, particularly after food, which started 18 days before admission. Examination revealed a sausage-shaped abdominal tumour across the epigastrium. There was no rigidity, and the patient's condition appeared fair. It was decided to operate at once, and at operation an ileo-caecal intussusception was discovered in the region of the hepatic flexure. It reduced readily by milking, although the caecum appeared very oedematous. This patient died on the third day after operation for no apparent cause.

Case 6.—A 25-years-old male had abdominal pain and vomiting of nine days' duration before admission. He too had a sausage-shaped abdominal tumour, but there was no rigidity and no obstruction. An ileo-colic intussusception which occupied the right side of the abdomen was reduced at operation, and the patient made an uninterrupted recovery and was discharged from hospital 25 days after admission. (All the cases were operated on under spinal anaesthesia.)

From a consideration of these cases the following points emerge:

1. Obstruction does not appear to be an early feature of this disease in young adults. Case 4 was the only one with definite obstruction, and in this case there was a history of abdominal pain and vomiting of one month's duration.

2. Although the ileo-ileal variety is generally regarded as being more common after the age of 3 years, the anatomical variety met with in all these cases was the entero-colic type.

3. The passage of blood and mucus, which is regarded as one of the cardinal signs of the disease in children, was not met with in any of the cases.

4. All the patients in this series were male.

5. Acute intussusception is generally regarded as a disease met with in infants up to two years, and in its chronic form in adults—generally over 60 years. Although this series is too small to justify any definite conclusions, it is nevertheless well to bear in mind this condition in considering the differential diagnosis of acute abdominal conditions in children and young adults, at any rate in tropical Africa.

The predisposing factor in these cases is most likely the fact that the African peasants' diet consists mainly of carbohydrates—yams, cassava, and corn—which give rise to fermentation in the large bowel and gaseous distension of the bowel. Any condition which causes violent peristalsis like injudicious diet or violent purgation would drive the ileum into the roomy ascending colon. The late onset of obstruction and gangrene in these cases, and the fact that most of the intussusceptions reduced so easily in spite of their duration, lend support to this theory, as, owing to the width of the colon, the ileum could enter it with part of its mesentery without its blood supply being obstructed.

I am indebted to the Director of Medical Services, Nigeria, for permission to publish these cases.

—I am, etc.,

Oshogbo, Nigeria. M. A. MAJEKODUNMI.

SIR,—I was very interested in the article on acute intussusception in childhood by Dr. Brenda Morrison and Dr. Donald Court (April 24, p. 776), but it was disappointing that they gave so little attention to non-operative treatment in early cases. From force of circumstances I was obliged to try the old-fashioned method of inflation with air on the only two cases I have seen in this remote settlement in northern Canada, with results so dramatically successful that it seems a pity that it should not be tried in all early cases even when facilities for operation are at hand. Since the reduction can be attempted under the anaesthetic given to confirm the presence of the tumour and requires no elaborate equipment or skilled assistance, the loss of time in trying it is very small, and in

case of failure no harm has been done. Where the baby lives far from a hospital the method can be life-saving, as I think the histories of my two cases prove.

Case 1.—October, 1943. The patient, a white girl of 17 months, was a strong healthy baby. She wakened at 6 a.m. screaming with pain, vomited a little clear fluid, refused food, and during the rest of the morning slept between attacks of crying with pain. Early in the afternoon a little blood-stained mucus was found on her diaper. When I saw her soon afterwards she was pale and collapsed, with a weak, rapid pulse but no fever. Her mother told me that when rubbing the baby's abdomen in an attempt to ease the colic it had seemed to her that the left flank felt empty. This was not noticeable when I examined her, and I felt nothing abnormal, but on rectal examination I found the apex of the intussusception just inside the anus, and it was visible as the baby strained when I withdrew my finger.

Prolonged autumn rains had made the ground too soft for an aeroplane to land, so that the alternatives were either a 36-hour journey to hospital carried on a saddle-horse over rough bush trails, or operation by me, single-handed, with the aid of an amateur anaesthetist. Neither appeared to offer much chance of life to a shocked baby. It seemed justifiable to attempt reduction by inflation with air.

At 4 p.m., about ten hours after the onset, under an anaesthetic administered by a neighbour, I introduced a small rubber catheter alongside the intussusception, attached it to the bellows of a Junker's inhaler, and pumped very gently while compressing the buttocks to prevent the return of the air. The resistance could be easily felt by the hand. After keeping the pressure steady for a minute or so there was a clearly audible "plop," heard by the anaesthetist as well as myself, and there was no further resistance to inflation. A few minutes afterwards, before the child was fully awake, she had a large normal bowel movement, preceded by a little blood-stained mucus. The baby's recovery from shock was most dramatic; within half an hour she appeared perfectly normal. She has never had any illness since then.

Case 2.—April, 1946. The patient, an Indian boy aged 15 months, was a particularly husky baby. At 10 a.m. he suddenly vomited and complained of pain in his abdomen, and cried at intervals all morning. At 2 p.m. his mother found about a teaspoonful of bright red blood on his diaper, but no faeces. When I saw him at 3 p.m. he was very pale and lay limply on the bed with eyes half-closed. Every few minutes he roused and cried in obvious pain. His temperature was normal, pulse 130 and very weak. His abdomen was very tender to palpation, but I thought I could feel a tumour on the right side. He vomited a little clear yellowish fluid while I was examining him. The rectum was empty, and there was only a little blood and no trace of faeces on the examining finger.

On this occasion a snow-storm made it impossible to get him out to hospital by air, and, remembering the previous case, I decided to try inflation again if examination under an anaesthetic confirmed the presence of the tumour.

Six hours after the onset of symptoms, under an anaesthetic the classical sausage-shaped tumour could be clearly felt, extending from the right iliac fossa to the border of the liver. By the same method as before the bowel was very gently inflated. The line of the colon could be clearly seen to bulge. After a few minutes the swelling gradually disappeared, though the buttocks were firmly held to prevent the return of the air. A further slight pressure on the bellows produced no feeling of resistance to the hand. An hour later the baby was still sleeping peacefully, his colour good and pulse much stronger. By 9 p.m. he was sitting up playing, had had no further pain or vomiting, and looked quite well. The bowels were opened the next morning; there was a slight stain of brownish blood on the diaper and a small amount of faeces containing raspberry seeds and paper. The stool the following day was absolutely normal with no trace of blood. The child has never been ill since.

—I am, etc.,

Keg River, Alberta. MARY PERCY JACKSON.

Megaloblastic Anaemia of Pregnancy

SIR,—The two cases described under the above title by Drs. M. Gillespie and A. M. Ramsay (May 1, p. 828) are of intense interest to all haematologists, but it is questionable whether they should be grouped with the classic macrocytic anaemias of pregnancy. The proportion of myeloblasts in the blood and marrow is against that diagnosis, while the clinical, haematological, and necropsy findings are in keeping with the small group of cases which can be classified as of the "leukanaemia syndrome." The distinction is important in that the classic cases of macrocytic anaemia of pregnancy respond to appropriate treatment or to the termination of pregnancy, while "leukanaemia" progresses to the fatal end. Though the term "leukanaemia" is one of convenience rather than one of diagnostic exactitude, it is interesting to note that Gillespie and Ramsay postulated a possible maturation factor defect involving myeloid as well as erythroid cells. This is a conception of the condition to which H. Foy, A. Kondi, and I (*J. Path. Bact.*, 1946, **58**, 157) were also forced in considering such a case some years ago.—I am, etc.,

Johannesburg. JAS. F. MURRAY.

Urological Surgeons in Conference

SIR,—In your report (July 10, p. 85) of the Annual Meeting of the British Association of Urological Surgeons held at the Royal College of Surgeons from June 24 to 26 no reference has been made to the papers read by two distinguished honorary members. The discussion on urinary lithiasis was opened by Professor Hellström, of Stockholm, a leading authority on its aetiology; the following day a paper was read by Dr. Michon, of Paris, on the repair of exstrophy of the bladder with restoration of continence. Both these papers will be published in full in the September number of the *British Journal of Urology*.

Professor Hellström was the only official guest, but although no special invitations to attend the meeting were sent to colleagues abroad Professor Fey and Dr. Michon, of Paris, and urologists from Italy, Portugal, Spain, Sweden, Turkey, and Uruguay listened to the discussions. This was a tribute to the prestige of British urology.

Besides these guests the members of council had the pleasure of welcoming Mr. Mortensen, President of the Australasian Urological Association, Mr. Thomson Tait, of Melbourne, and Mr. Keith Kirkland, of Sydney, N.S.W. The policy of developing and co-ordinating the medical resources of this country for the benefit of our colleagues throughout the world is already beginning to bear fruit. In conclusion, may I congratulate the B.M.A. on the formation of the Empire Medical Advisory Bureau.—I am, etc.,

CLIFFORD MORSON,
President, British Association of Urological Surgeons.

London, W.1.

Clinical Records

SIR,—Mr. Malcolm Donaldson (July 3, p. 47) has pointed out the essential weakness in the statistical analysis of medical records. I would suggest that it would help to improve their value if these were compiled in a form that would be of practical help to the clinician and thus enlist his interest. To expect the clinician to fill up a complex form which is rendered to some central bureau for analysis by statisticians is exasperating to him and does not encourage his interest. If the form were such as to be of practical value to him accuracy would be encouraged.

It was with this idea in mind that I devised the record card described in the *Lancet* (1947, **2**. 189), which was based on the Copeland-Chatterson system. This allows for adequate coding and cross references for a moderate-sized hospital department, but it is cumbersome to work in large numbers and would be quite inadequate for a record bureau, where obviously mechanical sorting is necessary. If the initial analysis of clinical records could be done on such a record card the information coded thereon could be transposed to a punch-card system for use at a central bureau, and the record card could remain at the disposal of the clinician for study of his own cases. I have already described the value of such record cards to the clinician in the above-quoted letter.—I am, etc.,

Cheltenham. C. P. DONNISON.

Paludrine

SIR,—Having used "paludrine" prophylactically and therapeutically for just over a year I have been unable to substantiate the rather, I think, excessive claims made for it. Having been in the habit of taking 5 gr. (0.32 g.) of quinine daily for over twenty years, during the war I changed to mepacrine, with about equal results. When paludrine became available in early 1947 I changed to that drug, as neither quinine nor mepacrine had kept me sufficiently free from malaria of a mild type in a highly malarious district. I started taking 0.1 g. paludrine twice

a week, then three times a week, then on alternate days, then daily. I have taken 0.1 g. daily now for approximately eight months, and the results are about equal to those of quinine or mepacrine.

As regards those under my care, the result has not been happy. In the highly malarious port of Bonthe during 1947 I advised those Europeans who consulted me, and who were taking quinine or mepacrine, to try paludrine in the recommended dosage of 0.1 g. twice a week. Three went down with smart attacks of malaria within a month, parasites being found in one instance. Other Europeans suffered less severe attacks under the same regime; parasites were found in one case. Those who wish to take paludrine I now advise to take 0.1 g. daily. A number of Europeans have returned to their former quinine or mepacrine, and I am not now advising those already taking these drugs to change to paludrine if they are satisfied. Except in my own case, I have not been able to follow up the after-history of those taking 0.1 g. paludrine daily.

Therapeutically paludrine seems at least equal to quinine or mepacrine, though I prefer to give two 10-gr. (0.65-g.) doses of quinine at the start of an attack, giving at the same time 0.1 g. paludrine three times a day, and continuing with it in this dosage for ten days. I do not say that initial dosage with quinine is a necessity, but it still seems the best drug to bring down the temperature quickly.

In spite of this not very eulogistic account of paludrine, nevertheless I prefer it both prophylactically and therapeutically to either quinine or mepacrine. In the highest dosage tried, that is 0.1 g. prophylactically and 0.1 g. therapeutically once and thrice daily respectively, it is certainly not inferior to the other drugs and has the advantage of being apparently free from any toxicity in the therapeutic dosage tried. I can myself carry on with my full activities after at most 48 hours' treatment, and usually earlier, and I have had no complaints of unpleasant reaction from patients. The same cannot, emphatically, be said of quinine, and not always of mepacrine. Its freedom from dyeing the skin is also an advantage of paludrine.

Paludrine is a valuable drug which should not be allowed to fall into disrepute when it may be that merely a change in dosage and/or régime may be required. I see the manufacturers have altered the recommended dosage somewhat; but 0.1 g. twice a week would not seem to presage much improvement, since in my own case even 0.1 g. daily is not completely protective. I propose to try 0.3 g. in one dose once a week (as also recommended by the manufacturers) and work from that. It may be that a comparatively large dose taken once or twice a week may work better. I might add that in my own case and that of a number of others an attempt was made to sterilize the blood first with a full therapeutic course of 0.1 g. paludrine thrice daily for ten days before continuing with it prophylactically; but I have not found this makes any difference. The air wants clearing as regards this drug, and I should be grateful for the opinion of practitioners of experience.—I am, etc.,

Shenge, Sierra Leone. E. S. WALLS.

Odd Legs

SIR,—Although I did not read Dr. Nesta H. Wells's original letter, the communication of Captain Robert Fuller and Lieut. Douglas L. Woolf (July 10, p. 109) interested me personally, since at the age of 12 years I was sent to see the late Mr. T. H. Openshaw about the increasing deformity of my left foot due to infantile paralysis, and he pointed out to my parents that the 3/4 in. (1.9 cm.) shortening of the limb was causing curvature of the spine. I remember thinking that a spine anyway was pretty much given to curvature, but my parents obediently saw to it that my left heel was raised 1/2 in. (1.3 cm.) and my right heel lowered 1/4 in (0.63 cm.). At that time I also had some sort of a tarsectomy done to stabilize the ankle, and incisions in the plantar fascia—the whole procedure being to correct a fairly well marked equino-varus deformity. The boot prescribed was of the customary type with an iron up the inner side.

Two or three years later my head master, Dr. J. R. C. Greenlees, seeing my keenness for chasing balls and recognizing perhaps the possibilities of an exceptionally powerful right leg, suggested that I might take up rugger again. The late Sir John Fraser, whom I consulted, did not forbid me, and he pointed out to my parents that the contractures of the calf muscles had exactly compensated for the shortening of the leg. I could not of course stand to attention with both heels on the ground. I presume, therefore, that it was fortunate for me that the plantar and not the dorsiflexors of the foot were paralysed. By a simple adaptation of the boots I was able to continue playing full-back at school and later for my hospital ward. In the same way cricket, hockey, etc., presented no difficulty. Tennis, however, proved a problem, since on no type of court are boots welcome. For some years I wore a galosh over my left boot but after a time, when I found I could not beat the other members of the family, I became exasperated. So taking an old worn-out boot I performed a Syme's operation on it and began to wear an ordinary gym shoe together with the "stump" in order to give my ankle support. It was entirely successful.

During six years in India I very soon—after about five weeks—gave up any attempt at wearing boots, because of the heat. I had a modified pair of sandals made which were very comfortable and light, and were ideal for ordinary hospital work. However, after six years of sandals I found that my original footwear was intolerable, so I searched Edinburgh for a boot which would give me some of the advantages of those sandals; and now I get "odd" factory-made boots, the left being two sizes smaller than my right. Since my left boot pre-war cost about £5, this is also a considerable saving of expense. The fact that I must wait 3–5 months for delivery might seem a disadvantage, but I sometimes waited nearly that long for a boot to be specially made for me.

No doubt over the past 15 years facilities have vastly improved and ideas become more generous in their outlook. It is our job to see that the "lame man shall leap as an hart" and that "the tongue of the dumb shall sing"—even if the lameness and the dumbness remain. Better a deformed limb useful than a straight one loaded down with theory.—I am, etc.,

Edinburgh. M. LUDLAM.

Vaginal Injury at Coitus

SIR,—The following case of a vaginal vault injury due to normal coitus in a young parous woman may be of interest in view of a previous article in the *B.M.J.* of April 24 (p. 786).

CASE REPORT

A tall, well-developed married female of 17½ years old, 1-para, 3½ months post partum, was admitted complaining of severe haemorrhage per vaginam which had begun during intercourse. She also complained of slight pain in the lower abdomen. The incident occurred one hour before admission.

Her period had been due on the day of admission, but the present loss was in no way like her menstrual loss, being much more rapid, with brighter blood, and of sudden onset. Pulse rate 116, and of diminished volume; respiration 24; temperature 99° F. (37.2° C.); B.P. 115/80. The patient was pale and conjunctivae were poorly coloured. The abdomen was soft and there was very slight tenderness over the pubis. The uterus was not palpable per abdomen. Per vaginam the external os was closed and the cervix was firm and "non-pregnant." The vagina was packed with gauze in the receiving ward, and the patient was sent to theatre.

The possibilities considered were trauma, abortion, and sub-involution of the uterus. Instructions were given to "lay up" for a possible repair, vaginal packing, or dilatation and curettage. The patient was examined under a general anaesthetic and the introitus was found to be of a parous type, with a small amount of unrepaired perineal tearing at delivery. An Auvard speculum was inserted and inspection showed the vaginal vault to be somewhat relaxed. The cervix was closed and not bleeding. High in the posterior fornix there was a linear laceration 2 in. (5 cm.) long, extending from one lateral fornix to another across the vault. The floor of the laceration was composed of vascular cellular tissue, and peritoneum was not visible. The vulsellum forceps were transferred to the posterior lip of the cervix, and by holding this up excellent exposure was obtained. Eight No.-1 catgut interrupted sutures co-apted the edges and completely arrested the haemorrhage. The area was sprayed with penicillin powder.

The patient made an uneventful physical recovery, although there appeared to be a certain amount of residual emotional trauma. Haemoglobin on the fourth day was 66%. She was discharged in seven days.

DISCUSSION

The patient was interviewed both on admission and after operation in regard to the use of artificial appliances, birth control apparatus, etc. The use of these was denied with apparent honesty and sincerity. The husband was also interviewed separately, and bore out his wife's statements. Intercourse was in the dorsal decubitus position. The husband permitted examination of himself, and there was no undue enlargement or distortion of the parts. The patient was a tall well-built woman, and there was no question

of disproportion. Factors which might contribute to this accident are those which depress the fornix. A shortened perineum from severe perineal tears would diminish the height of the vaginal vault. Uterine prolapse with or without rectocele would predispose similarly. Physiologically a simultaneous contraction of abdominal wall and diaphragm would raise intra-abdominal pressure and momentarily depress the pelvic diaphragm.

Another factor to be considered is the part her recent pregnancy may have had in softening and vascularizing the parts. Since this case I have heard of another similar one at 6 weeks post partum. On the other hand a case is described by Nicholls of an adult female with similar injury 8½ months post partum, when complete involution should have occurred. Three cases are described in the *Medical Journal of Australia* of 1919, two by D'Arcy, and one by Stokes. Other similar cases are described by Anspach, Ricciardi, and numerous others. All cases are characterized by haemorrhage severe enough to threaten life and which usually requires surgical repair for its arrest. The literature contains a goodly number of cases of this type, but most textbooks devote only a few lines to this subject, if it is mentioned at all.

The leading textbooks describe coital injuries as occurring primarily at the vulva and hymeneal areas, and sometimes extending upwards from this. Injuries high in the vagina are usually said to occur in old women or young girls.

I should like to express my thanks to Dr. C. D. Coyle, Medical Superintendent of the Archway Hospital, and Miss Harding, consulting gynaecologist, for permission to publish this case.

—I am, etc.,

London, N.19. MORTIMER BURDMAN.

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Use of Ring Pessaries

SIR,—During the past three years I have reviewed a large number of old women, some not so old, who have collected as the ragtag and bobtail of my out-patients and form that neglected and pathetic army dealt with haphazardly by the house-surgeon or the out-patients' sister—the "ring pessaries." It will be comment enough, I think, to report that this large army has now been reduced to three. Fifty-seven have undergone some form of colporrhaphy or vaginal occlusion, their ages ranging from 37 to 84, with a mortality of *nil* and a happiness of 100%. Fourteen have had their rings removed—they were unnecessary. Of the remaining three, two are quite unfit for operation and the third prefers to lead her ring life. It would seem, therefore, that three out of seventy-four ring pessaries were necessary, somewhat less than 5%. This percentage, in terms of the whole country, indicates at least the urgent need for a critical review, and it is therefore desirable to lay down the conditions in which ring pessaries should be used.

A ring pessary is the facile answer to any woman complaining of a bearing-down feeling, though this may be due to anything from a cervical polyp to a urethral caruncle. There is therefore great necessity for an accurate diagnosis, or even an "eliminating" diagnosis. There are three types of cases to which rings are generally fitted. The first, and probably the most pathetic, are the young women who have descent of the vaginal walls in the immediate weeks following childbirth. The usual train of thought is that these walls must be supported until the "involution" of the vaginal tissues reduces the "prolapse." This is an outstanding example of muddled thinking. A ring pessary, surely, if it has any effect, produces this by stretching the vaginal walls. To apply a ring in these cases is therefore to produce the very condition we wish to avoid, apart from the mental, physical, and marital discomfort that accompanies its use.

The second type of case is the middle-aged woman in which there is permanent descent of one or both vaginal walls. To them the ring pessary is fitted in their thousands without reference to the relative degrees of uterine or vaginal prolapse, to the presence or otherwise of stress incontinence, which no ring could possibly cure or help, and very often without reference to the state of the cervix. I have seen more than one carcinoma of the cervix treated with a ring pessary. The truth is that the doctor is in a difficult position. Although he may feel that a surgical cure of the prolapse is desirable, the woman, because of domestic difficulties, fear of operation, and so on, declines his advice, and his only alternative is to fit a ring, which of course does bring comfort in many cases.

The third type of case is where, because operation is out of the question, a ring pessary is the only treatment. May I plead, therefore, that ring pessaries, except perhaps in this last category, with their stink and their dangers, be put on the bonfire of last year's gynaecological garden? May I plead with even more entreaty that the Hodge pessary in the treatment of "retroversion" be put away altogether and for ever from our minds and our uses?—I am, etc.,

London, W.1. MORTIMER REDDINGTON.

Antenatal Care

SIR,—There has been a great deal of correspondence in the medical journals and in the daily press on the relief of pain in childbirth, and it is generally agreed that fear and anxiety often lead to a painful and difficult labour. The best way to allay the apprehension which many women have towards their confinement is for them to know and have confidence in the doctor or midwife who is going to undertake their case.

The main purpose of antenatal care is, I consider, not only to diagnose and treat any abnormalities, but to get to know the mother, to allay her fears, to confound the old wives' tales, and, as the time of delivery approaches, to gain her complete confidence, which will lead to co-operation in the actual labour. There seems to be a tendency nowadays to allow antenatal care to become a cursory affair. The National Health Service (General Medical and Pharmaceutical) Regulations, 1948, state on p. 16 that "in the case of maternity medical services all proper and necessary treatment shall include advice in regard to antenatal supervision; antenatal care including an initial medical and obstetric examination and an examination at the thirty-sixth week of pregnancy or at any time that the practitioner thinks necessary." In other words, the doctor can attend a mother in labour after having met her only twice before. Antenatal clinics held by some local authorities seem to be run on these lines. One case I sent up with a letter asking to have an abnormality investigated was turned away by a clerk because she was only three months pregnant. Another case, thirty weeks pregnant, was told that she need not attend again until labour commenced.

Some years ago I was a resident obstetric officer at an L.C.C. hospital where we had a large maternity department and ran our own antenatal clinics. We asked our mothers to attend every month up to the seventh month, every fortnight during the eighth month, and every week for the last month of the pregnancy. During this time the mothers got to know the doctors and nurses well, and they were no strangers to us when they came into the hospital for their confinement. Our forceps rate over a series of about 600 deliveries was only 6%.

I have continued to carry out antenatal care on the above lines and have found that the knowledge and friendship obtained from these frequent consultations produces confidence and co-operation during labour, into which the mothers enter quietly and calmly and mentally at ease. This produces the relaxation which appears to be so necessary in alleviating the pains of labour. The analgesics, especially pethidine, have far more effect under such conditions. If I am allowed to continue the practice of midwifery under the new health service I shall see my patients just as frequently, for then I too can approach a confinement with the assurance that I am going to deliver a mother who, knowing me, will do her best to co-operate with me in a spirit of happy anticipation.

May I conclude by saying that the utility maternity service provided by the Ministry of Health at £7 7s. a time (cheaper quality £5 5s.), in which a doctor is required to see the mother only twice before labour and to attend at the confinement only if he thinks necessary, is not likely to lead to the utopia of painless childbirth which certain correspondents in our popular press would have us believe has been attained by our colleagues on the other side of the Atlantic.—I am, etc.,

Gidea Park, Essex. J. G. FIFE.

Comprehensive Child Health Service

SIR,—May the following suggestions be brought to the notice of those interested in the development of a comprehensive child health service in this country? Our child health service, although better than in most countries, is still in its embryonic state. Nevertheless there is already an odd maldevelopment taking place—hereditary perhaps from the days when paediatrics formed a minor part of obstetrical teaching. This anomaly, I feel, is of an importance which cannot be sufficiently emphasized and which, allowed to develop, may for ever prevent the establishment of a satisfactory child health service. I am

referring to the fact that child welfare forms part of the maternity welfare service, and thus a sharp division is created between those occupied with prevention and those occupied with the cure of diseases of children.

Three distinct services cater for child health at present: the maternity and child welfare service (how reminiscent is this combination of pre-paediatrics days); the school medical service; the general practitioner. Considerable overlapping and confusion between these three services exists and is bound to increase as the welfare scheme develops—i.e., a mother will take her child to the welfare centre, where some ailment is discovered. The welfare M.O., respecting jealously guarded rights, cannot treat the child, although perhaps better qualified to do so, but has to refer the child back to its G.P. Such occurrences are numerous; and thus, although not wishing to pass any judgment on the relative abilities of welfare paediatricians and G.P.s, the child is deprived of the best service available. Surely the paediatrician, best qualified to deal with child welfare, is best qualified to deal with diseases of children. In other words, surely the person best qualified in the prevention is best qualified in the cure and *vice versa*; the person best qualified in the cure is also best qualified in the prevention of diseases of children.

I hope I have made myself clear. It seems absurd to have a maternity and child-welfare officer with a dossier of the child's health and the G.P. with a dossier of the child's diseases. I fear our babies may fall between two stools, and to prevent this from happening, to give our children the best available attention, the establishment of a comprehensive paediatric service is proposed.

The scope of this paediatric service would be supervision of child health from almost conception to 12 years, the school medical service forming part of the scheme. To translate the proposal into practice the following suggestions are offered:

(*a*) The appointment of one or more paediatricians for each community. Such a paediatrician—preferably, the holder of a D.C.H. and/or a higher qualification, or at present any G.P. with special experience in paediatrics working in co-operation with M.O.H., nursery school medical authorities, and child welfare workers—would be responsible for child health in his community and combine the functions of the present child welfare M.O. with those of the paediatrician.

(*b*) It is suggested that the Minister be approached to press local authorities to provide suitable accommodation for child welfare centres.

(*c*) That all children of the area be on the paediatrician's panel.

(*d*) Holding an appointment of such scope and responsibility the paediatrician ought to be allowed capitation fees for all the children in his panel, have an additional salary for his work as child welfare officer, and perhaps be also allowed paediatric beds at the local hospital, if such is feasible.

Among his duties would be ante- and post-natal advice to mothers; propaganda on child health, including occasional lectures; child hygiene and nutritional problems; the toddler, etc; and, most important of all, prevention *and* cure of diseases of children.

The advantages are obvious, the opportunity unique. This would be the first country in the world having a complete paediatric service available to all children, including the toddler, who, too old for welfare clinic and too young for school, does indeed fall between two stools at present.

The disadvantages are few, and any pecuniary losses that may accrue to general practitioners are almost nullified by the fact that within the next few months most children will be insured. Quite on the contrary, a considerable burden—vaccinations, etc., etc.—will be taken off their shoulders. The only other disadvantages which I can see are that a mother may have to travel further to reach the paediatrician, but surely no mother will deny her child the best opinion available. Finally, the poor paediatrician: his indeed will be a hard lot until sufficient paediatricians are available, but I feel the goal is a noble one—at last a complete health service to the most important section of our community—our children.—I am, etc.,

London, E.11. P. O. CROSSFIELD.

Lower-segment Caesarean Section

SIR,—It is always a risk to say that anyone was the first to propose anything in medicine, and Mr. Bryan C. Murless (June 26, p. 1234) would appear to be in error in saying this of Frank with regard to lower-segment caesarean section.

Osiander's operation in 1805, though crude and dangerous, was nevertheless a lower-segment approach. In 1881 Adolf Kehrer used a technique which differs only in detail from that of the present day. He incised the lower segment transversely, but did not dissect the bladder downwards nor free an upper flap of peritoneum. This great advance was lost sight of, because of the success of Sanger's improved technique for the classical approach, until 1906, when Frank began to achieve better results still with his "suprasymphysial"—i.e., lower segment—operation.—I am, etc.,

Manchester. WALTER CALVERT.

R.C.S. and Fellows' Opinion

SIR,—Lord Webb-Johnson's reply (*Journal*, July 3, p. 46) ignores the essential point in our previous letter (June 26, p. 1258)—namely, his suppression from the medical profession of the resolutions passed at the Fellows' meeting on April 28. That suppression is maintained in Lord Webb-Johnson's letter, in which, while mentioning the second and third resolutions, he does not disclose their nature.—We are, etc.,

A. ROY DINGLEY. REGINALD L. MURLEY.
CHARLES HAMBLEN-THOMAS. REGINALD T. PAYNE.
JOHN HOSFORD. ALEX. E. ROCHE.
NORMAN A. JORY. W. ETHERINGTON WILSON.

SIR,—We all regret the cleavage in our College over the Health Act. It may be that, as the President avers, some Fellows have a political axe to grind as well as scalpels to sharpen in Lincoln's Inn Fields. But most of us, regardless of party, are bent on sound surgical succour for all who need it. The profession, painfully aware of the grave inadequacy of its services, had paved the way for reformatory measures. We thought our hopes were about to become realities. Instead we found the presented Act lacking in elements essential for the successful extension of "the study and practice of surgery." To protest against it became our solemn duty to the founders of the Royal College of Surgeons and the public.—I am, etc.,

Bristol. A. WILFRID ADAMS.

Chemists' Working Hours

SIR,—A few weeks ago I broached the question of chemists' hours for supply of urgent medicines. Some of your correspondents have supported me. Now you print (July 3, p. 49) a letter from a chemist who seems to consider that the comfort of a dispenser comes before the health of the people, that doctors keep patients waiting while they finish their game of golf, and that the B.M.A. is not concerned with seeing that the public is properly supplied with medicine. No further comment is needed on your correspondent's opinions.

I may be permitted to state that recently when I ordered some urgent medicine for a patient at 8 p.m. on a week-day the patient's brother cycled around for some time in this district without being able to find a chemist available. He then went to a West End chemist and had to call back in an hour and a half before he could have the medicine. Something is wrong here.—I am, etc.,

London, N.W.11. L. S. WOOLF.

The Ministry of Health reports that there are still a number of Government scholarships available for suitable State-registered nurses and male nurses (general trained) who wish to train as sister tutors or male tutors. Applicants must generally have had at least three years' post-registration experience in nursing in hospital, including at least one year in charge of a ward in an approved training school. Those selected are given an allowance of £150 for the period of training (one academic year) towards the cost of maintenance and incidental expenses, and their training and examination fees are paid. Subject to certain conditions an additional allowance is payable to a married man in respect of his wife and any children under 16 years. Successful candidates must undertake to serve as registered tutors in a hospital of their own choice in Great Britain for a period of at least two years. The next courses of training will start in the latter part of September or early October; those who wish to apply for assistance under the Government scheme should write immediately to the Secretary, Ministry of Health, Division 3C, Whitehall, London, S.W.1.

Obituary

W. AUSTIN ROBB, M.D., F.R.C.P.

Dr. W. Austin Robb, who died at his home in Exeter, at the age of 55, on July 12, had a remarkable career embracing three branches of medical science.

William Austin Robb was born at Burnt Fen, near Ely, in 1893. His first training was as a pharmacist, and he served St. Bartholomew's Hospital in its dispensary before becoming a medical student there. Previously he had been with the 36th Field Ambulance as a sergeant-dispenser, and he had been wounded and taken prisoner in 1916. After qualifying in 1924 he became house-physician to the late Sir Walter Langdon-Brown, whom he greatly admired and was subsequently to serve as chief assistant, after an intervening period as demonstrator of pathology. He obtained the London M.D. and the M.R.C.P. in 1926. A career of uninterrupted success in medicine and his outstanding clinical ability then appeared to point clearly to a future as a consulting physician. It was therefore with some surprise that his friends heard of his appointment in 1931 as pathologist to the Royal Devon and Exeter Hospital, a position in which he continued for the rest of his life. He had had an extensive experience in clinical pathology in the two more senior appointments he held at St. Bartholomew's, and indeed he had always done for his own patients a great deal of laboratory work which most men less inclined in that direction, or less enthusiastic, would have left to others. Nevertheless he was regarded as a clinician, and indeed was a very good one; hence this decision to take up the appointment at Exeter was unexpected.

Austin Robb's subsequent career provided an outstanding example of the value to a clinical pathologist of a wide knowledge of medicine. He was the kind of pathologist who is not merely asked to perform specified investigations but is invited to make whatever investigations he thinks appropriate and to produce an opinion based on all features of the case, both clinical and pathological. In this capacity he became one of the leading figures in medicine in the West of England, and an undisputed authority in that part of Devonshire in which his responsibilities lay. He was on the staff of many hospitals covering a wide area, extending even into Somerset. During the war he shouldered the added burden of organizing the blood transfusion service, a task which as Regional Resuscitation Officer he carried out with great efficiency. The exertions Robb imposed on himself may well have been a factor in the illness which caused his premature death. His other activities included frequent attendance at meetings of the Pathological Society and of the Association of Clinical Pathologists, of whose Council he was a member in 1942–4. He was also a member of the *B.P. Codex* Revision Committee, a position for which his varied experience made him exceptionally well qualified. He was a vice-president of the Section of Pathology at the annual meeting of the B.M.A. in 1938. He was elected F.R.C.P. in 1945.

Robb's personal popularity was well deserved. He had always the air of a countryman, simple, unpretentious, frank, and genial. His natural kindness must have been a major factor in his success in dealing with patients. He leaves a widow, a son, and a daughter, to whom the sympathy of all his friends and colleagues will be extended.—L. P. G.

W. A. B. writes: Other people can write better about Austin Robb as a clinician-pathologist of the front rank, but may one of the many who benefited from his innumerable kindnesses write of his capacity for friendship? This survived many miles of separation and the lapse of many years. Through him my most prized distinction was obtained, and for this no trouble was too great, at a time when he must have known his inevitable end. Speaking, the last time I saw him, of a distinguished man who I gathered had helped me also, he said: "He is very generous with his largesse." If that was ever true of anyone it was of that loved and cheerful Christian, Austin Robb.

D. V. H. writes: Austin Robb was one of the remarkable group of clinical pathologists who came to maturity between the two wars. These clinical pathologists were essentially physicians who worked in the laboratory at the elucidation of clinical problems, and even if the growth of specialization condemns this type to extinction their value to the practice of English medicine and surgery in the county hospitals has been outstanding. They taught the clinicians what questions should be addressed to the laboratory and how to interpret the answers. Robb was a well-known and much-loved figure at Bart's for more than ten years. "Robb is too good a man to be allowed to leave London," said Langdon-Brown when the time came to take another step up the ladder, and doubtless Robb would have valued an appointment to the Bart's staff. But he was essentially a countryman, and his appointment as pathologist at the Royal Devon and Exeter Hospital gave him an environment which exactly fitted his needs. On the edge of the City of Exeter, looking over a Devonshire valley, he made his home, and out of the red earth of an old quarry he made his garden. To the building-up of a first-class laboratory in Exeter he brought an intense enthusiasm and an experience which equipped him fully for his task. His insistence on accuracy can only be described as passionate, and he was tireless in the pursuit of it in himself and in others. The extent of his work would have justified much writing; but he published little, for his energies were absorbed in the continuous improvement of his pathological service. He was allowed private practice from the start, and later on his colleagues showed their appreciation of his quality by giving him charge of some beds. These privileges meant much to him, for he was stimulated by personal problems, and he brought an unusual humanity and generosity to his human contacts. It was this last characteristic which gave him a great company of friends, and many are to-day saddened by his death in middle-age. Uncommonly fortunate in his work and in his family life, he knew himself to be unfortunate in his illness, and with courageous jesting he struggled against its inexorable grip. Not for him the folded hands, the passive resignation in the face of oncoming death. He died as he lived, and his friends unite in their thought of him as one who "should have died hereafter."

F. McG. LOUGHNANE, F.R.C.S.

Mr. Farquhar McGillivray Loughnane, the well-known urological surgeon, died at the age of 63 in St. Mary's Hospital, Paddington, on July 14, after a long illness which he faced with critical detachment. Mr. Loughnane was a student of St. Thomas's Hospital, where he won the Treasurer's Gold Medal and the Peacock Scholarship, qualifying in 1912, and taking the F.R.C.S. in 1914. He will be remembered professionally for his work in urological surgery. He had strong individual ideas and is probably best known for his advocacy of radical operation in urogenital tuberculosis. He was a pioneer in the field of transurethral resection of the prostate, and was a past president of the Section of Urology of the Royal Society of Medicine.

During the 1914–18 war Loughnane held the rank of captain in the R.A.M.C. and among many other appointments was surgeon specialist to No. 40 B.G.H. in Mesopotamia, where, by carrying out the open treatment of fractures in desert conditions, he proved himself to be an able general surgeon. He held the appointment of surgeon for many years at All Saints Hospital for Genito-Urinary Diseases; he was assistant urologist at the Prince of Wales's Hospital, Tottenham, and urologist to the London County Council. He had been surgeon to St. Mary's Hospital for Women and Children, Plaistow, for twenty-eight years, and he was also a consulting surgeon to the Hampstead Cottage Hospital. At St. Mary's, Plaistow, as at his other hospitals he was held in affection and esteem by all his colleagues—administrative, medical, and nursing. He will be sadly missed and will leave a gap which will not easily be filled. At Plaistow he gave many hours of devoted work in both operating theatre and out-patients department, as well as on the board of governors and hospital committees. No one who was associated with him will ever forget his deep sense of duty in every department in which he was interested.

Loughnane was a keen member of the Irish Golfing Society and often showed his persevering character in this pursuit. He was a loyal and active supporter of the B.M.A., representing the Marylebone Division for eleven years apart from being chairman of the division in 1938–9. Loughnane's nature was a warm and affectionate one, and to those who knew him well it was always a pleasure to be in his company. He was a man with very definite views, but always responded readily to those who needed his help. He leaves a widow, and the sympathy of all his friends will be with her.—G. H. R.

Medical Notes in Parliament

NATIONAL HEALTH SERVICE

MISS BACON described to the House of Commons on July 19, on the motion for the adjournment, what she called a medical black market which was being created by a minority of doctors who were discrediting and sabotaging the National Health Act by refusing to take on their lists patients who could afford to pay private fees or who needed special attention. Miss Bacon said it was common for a doctor to say to a person who had a sufficiently high income: "I am sorry I cannot take you on my list; this scheme is not for you; you can afford to pay." That was an immoral discrimination which was a disgrace to members of a great profession, but even worse were those doctors who were refusing to take patients because they needed extra attention—the old, the sick, and children. She had heard of one case of a household where every member except the grandmother was taken on the doctor's list. Presumably she was refused because the doctor thought she might become bedfast and would need extra attention. She had heard, too, of doctors who had refused to take children because they were likely to get childish ailments. There was the more subtle but no less sinister approach adopted by the doctor who did not refuse outright to take patients but suggested to them that they would not get the same attention as paying patients. [The B.M.A. have asked for details of these cases.]

MR. BEVAN said the practices described were carried on by a very small percentage of the medical profession. The vast majority were playing the game. It would be a great mistake if the majority of the profession were besmirched because of the conduct of a small number. It was wholly reprehensible for a doctor to select members of a family as patients and refuse others. Such conduct cut right across the conception of a family doctor. There was no justification for discrimination on financial grounds. If a person remained as a private patient he would also have to pay for drugs. That might have a chastening effect as time went on; as the knowledge grew it was possible that the area of private practice would diminish progressively. There were certain sanctions under the Act which could be applied where doctors said they could not take people on their lists and insisted on their being private patients or paying patients. Their areas could be regarded as under-doctored. It was one of the functions of the Medical Practices Committee to attend to that matter.

Confidential Certificates

Sir ERNEST GRAHAM-LITTLE on July 15 asked whether Mr. Bevan knew that anxiety was felt by doctors at the increasing tendency of Government departments to disclose to lay persons the contents of confidential medical certificates furnished by practitioners in charge of patients. As the regulations in Statutory Instruments 506 and 507 required medical practitioners in the new health service to submit to a committee consisting predominantly of laymen records of patients under their charge, Sir Ernest asked Mr. Bevan to withdraw this requirement.

Mr. BEVAN refused to do this and could not accept the implications of the question.

Drugs and Appliances

Mr. RANDALL asked the Minister of Health on July 15 if doctors, under the new health service, would be free to prescribe for the patients, without restriction, every kind of drug and appliance necessary for their treatment and would not have to work within the limits of averages of cost per insured person.

Mr. BEVAN replied that a doctor had a duty to prescribe under the National Health Service all drugs necessary for the proper treatment of the patient without any limit of cost whatever, also the appliances prescribed in the General Medical and Pharmaceutical Regulations. Other appliances were obtainable through the hospital service.

Spa Treatment

Sir WALDRON SMITHERS asked the Minister of Health if, in view of the resignation of Dr. McKenna, of Droitwich, he would make a statement on spa treatment under the National Health Service.

Mr. BEVAN thought this doctor might have been under a misapprehension. For patients of the appropriate hospitals in the National Health Service requiring treatment of the spa type it was open to a regional hospital board to arrange for convenient facilities for this treatment to be used, at the discretion of the medical staff of the hospital, to supplement the hospital's own resources. It was not a responsibility of the hospital service to provide treatment at spa establishments otherwise than in this way.

Medicines no longer Dispensed

Sir HENRY MORRIS-JONES asked whether any arrangements were being made to reimburse medical practitioners under the National Health Act in respect of the cost of drugs and medicines which would not now be required to be dispensed by them.

Mr. BEVAN replied that he had no proposals in mind, but that in any case this would be a matter for the Negotiating Committee to take up with him first.

V.D. Clinics

Mr. SORENSEN inquired why the statutory protection of secrecy had been withdrawn from persons attending V.D. clinics under the new National Health Service Act.

Mr. BEVAN said the withdrawal resulted from the revoking of the Public Health (Venereal Diseases) Regulations now that responsibility was transferred to regional hospital boards. He emphasized that treatment for venereal disease would continue to be as confidential as it always had been.

FACTORIES BILL

The Factories Bill, which was first considered in the House of Lords, passed through the committee stage in the House of Commons on July 9.

Mr. ATTEWELL said Clause 7 allowed the "appointed factory doctor" to act in his old position as examining surgeon and was open to objection, although with the passing of the Industrial Injuries Act the temptation for a doctor to be biased in his decision was not present. Nevertheless, when a man desired to appeal to a medical examiner to see if his complaint was caused by his work he should have no fear but that the decision would be in accordance with the facts as that medical examiner saw them. He submitted that it was dangerous for the appeal to go to a doctor not only closely connected with the firm on business grounds but also operating there from day to day.

Mr. ISAACS was satisfied that the charge could not be made against the profession that doctors gave certificates against their opinion. Whatever certificates they gave were given honestly and conscientiously. Most of the suspicion would disappear under the new Act, but the point was being raised because there had grown up a desire for a comprehensive medical service inside the factories. Where it was necessary for a certificate to be given under any of the Acts by the factory doctor the Government might see whether it could not arrange for another opinion to be brought into the picture. The Clause was ordered to stand part of the Bill.

Mr. MCCORQUODALE said on Clause 13 that it was time that Parliament in factory legislation began to differentiate between women and young persons. In the next Factories' Bill he hoped Parliament would consider that women were grown up.

Mr. ISAACS said this matter was under international consideration at present. It would probably become practical politics to make such a distinction before Parliament needed to revise the Factories' Acts.

Mr. PIRATIN brought up a new clause on weight-lifting. This provided that a person should not be employed to lift, carry, or move any load so heavy as to be likely to cause injury to him. He said many industrial accidents and illnesses were the result of strain in weight-lifting. The Minister had for eleven years possessed power to regulate weight-lifting for different industries, but so far regulations had only been introduced for potteries, woollen industries, and flour mills. The regulations did not limit the time during which the lifting of heavy weights was to continue.

Mr. ISAACS said Mr. Piratin had spoken against certain regulations and not against the terms of the Act itself. Regulations existed in the woollen worsted trade and were under consideration for jute. Under the existing Act the Ministry of Labour had all the power which was proposed in Mr. Piratin's new clause. In leaving the powers as they were at present the Ministry had more latitude for dealing with the problem than would be the case if the words suggested by Mr. Piratin were adopted. The proposed clause was negatived.

Mr. ISAACS thereupon promised to look into the subject raised in another proposed new clause on the safety of roof workers, and this clause was also withdrawn. So was a proposed new clause intended to include schools, technical colleges, and other institutions where persons were instructed in the use of machinery in the term "factory."

The Report Stage then concluded and the Bill was read a third time after the Attorney-General had said that the Government was considering the possibility of consolidating the factory legislation.

VETERINARY SURGEONS BILL

The Veterinary Surgeons Bill, which originated in the House of Lords and had been amended in a Standing Committee of the House of Commons, passed through the Report Stage in that House on July 9 after the Speaker had ruled out an amendment dealing with the docking of tails.

Mr. GEORGE BROWN, for the Ministry of Agriculture, then moved that the Bill be read a third time. He said that its two purposes—the extension of facilities for veterinary education and the control of unqualified practice met with approval on all sides of the House. He mentioned two matters which had been raised during the committee stage. One concerned the position of aliens. The Royal College already had power in suitable cases to register practitioners holding recognized foreign diplomas, so no new powers appeared to be required. The second question concerned partnerships between an unqualified man and a veterinary surgeon. He understood that it would not be proper for a registered veterinary surgeon to enter into partnership with an unregistered person and that a by-law of the Royal College prohibited it. This ban did not apply to existing practitioners registered under the Act of 1881. Persons registered in the *Supplementary Register* would similarly have a status in the profession. What should constitute professional conduct in matters such as this was best left to the governing body of the profession to decide.

Sir HENRY MORRIS-JONES said the Bill completed the process of regularizing the professions dealing with human beings and animals. He remembered the days in medicine when doctors had unqualified assistants. Eventually they became registered and made very fine medical practitioners. Under another measure unqualified dentists were allowed to become registered. Now Parliament was doing the same thing for the unqualified veterinary surgeon.

Sir IAN FRASER repeated a question raised in Committee. Was it right that therapists, masseurs, and bone-setters should not be permitted to practise on animals. He said that whereas he could call in one of these to treat his daughter's ankle, he could not call in any of them to treat his horse's fetlock.

Sir THOMAS DUGDALE said the Minister had satisfied the Committee that he could make an Order under Clause 5 whereby treatment by physiotherapy as well as electrical treatment could be given for animals, particularly horses.

Mr. GEORGE BROWN, intervening towards the end of the debate, said nothing would be more foolish than to encourage young men to go through a long and expensive training if they could not be sure of a position when they had completed it. The Government aimed to produce 220 new entrants a year, but there was nothing in the Bill to limit the output to that figure. Any university was authorized to give veterinary courses as soon as it was clear that they had all the facilities, and they knew that it would be wise to increase the total number of entrants into the profession. With regard to physiotherapists, the Government would consider sympathetically what sort of an order it could make, but the point could not arise for the first year after the passage of the Bill. The only ban contemplated was a ban on diagnosis, not on treatment.

The Bill was then read a third time.

PROPRIETARY MEDICINES

Mr. SKEFFINGTON on July 12 raised the subject of the price of proprietary medicines and asked whether it was possible to obtain a declaration from the Minister of Health on the proprietary medicine industry now that the National Health Act was in operation. He said this industry, whose capital was probably more than £100,000,000, and which made some of its profit out of human credulity and suffering, was almost uncontrolled. It seemed ludicrous to spend £160,000,000 a year on the health services while newspapers and hoardings all over the country carried inducements to persuade people not to take full advantage of the scheme. Before the war the advertisement costs of this industry were estimated at just under £300,000,000, and he had no reason to suppose that they were less to-day. Mr. Skeffington explained that he did not speak of proprietary preparations advertised in medical and scientific journals but of those advertised direct to the public. He recognized that some well-known remedies could be used without causing great harm to the individual, but the Ministry of Health ought to realize that proprietary medicines, by encouraging self-medication, might prevent the best use being made of the Health Service. One of his acquaintances had just produced a study of 120 well-advertised proprietary medicines, but owing to the law of libel he could not find a publisher, and when he did find one prepared to take the risk of publishing he could not find a printer prepared to take the risk of printing it.

Dr. HADEN GUEST: Ask the B.M.A. They have done it once.

Mr. SKEFFINGTON said he was not suggesting legislation, but in the public interest attention should be drawn to the discrepancy between the cost of the ingredients of these preparations and the price at which they were sold. One of the advantages of the Medicine and Pharmacy Act, 1941, was that the contents now had to be disclosed on the label of the bottle, but these formulae were in extremely small print which many people could not read, and often in Latin which many people did not understand.

Relevant Statutes

Mr. JOHN EDWARDS, replying for the Minister of Health, said a large number of statutes governed articles which were proprietary medicines. These included the Venereal Diseases Act, 1917, the Dangerous Drugs Acts, 1920–2, the Therapeutic Substances Act, 1925, and the Pharmacy and Poisons Act, 1935. The Food and Drugs Act, 1938, made it illegal to sell a drug which had a label falsely describing it or otherwise calculated to mislead as to the nature of the substance or its quality. The Cancer Act, 1939, prohibited advertisements of cures of cancer, and the Pharmacy and Medicines Act, 1941, altogether prohibited advertisements for the cure of such diseases as Bright's disease, tuberculosis, and the like. The same Act required full disclosure on the label of the active ingredients of all the medicines. Finally, the Penicillin Act, 1947, dealt with the whole range of penicillin products. This control was not concerned with the prices at which these things were sold and there was no way under present legislation by which they could be controlled.

Voluntary efforts had been made by some of those directly concerned to keep extravagant advertising in check. Bodies like the Proprietary Association of Great Britain and the Advertising Association had drawn up a tightened code governing what should be put on the bottles and in advertisements. Unfortunately, that code did not bind those who were not in the Associations. Everyone in the country was now entitled to a comprehensive health service, and he believed that on providing for everyone the medicines which the doctor considered necessary there would be less inducement to buy medicines which made misleading claims. Doctors for the most part would not prescribe medicines of the kind mentioned, and if they were to do so their colleagues on the local medical committee would soon put them right. In so far as these medicines were costly in relation to the cost of the ingredients, then it was for the public to be educated and to weigh the service freely available under the Health Service against the doubtful virtues of self-medication. He hoped that the efforts which some of the trades themselves were making would go at any rate some way towards meeting the situation.

Food and Health

Opening a debate on the estimates of the Ministry of Food on July 12 Mr. J. C. S. REID pointed out that the Economic Survey for 1948 showed a fall in the consumption of a number of commodities and demonstrated that the food available during the year had diminished by 200 calories per head per day on the average. He recognized that many, quite properly, got more than the average through canteens, school meals, and extra rations, but a great many got less. He suggested to Mr. Strachey that the time had come when he should re-examine his method of deciding who was to get extra allocations of food. He thought that the Ministry of Food relied too much on statistics. He hoped that as soon as harvest prospects became assured Mr. Strachey would announce that he was going to lower the extraction rate of flour. He also urged him to make much more sugar available at an early date.

Mr. STRACHEY said the House could rely on him to be rid of bread rationing at the earliest possible moment. The Ministry would like to lower the extraction rate further, and if it could not be lowered by 5% it would be well worth while to lower it by 2½%. It was true that last autumn the nutritional prospect for the first six months of 1948 had been dark indeed. But the Ministry took active measures to fill the gap and were helped by favourable weather. The calorie level remained almost exactly 2,800 and did not fall below 2,700 as the Ministry had feared. He would not say that 2,800 calories was too much. In the opinion of the Ministry's scientific and nutritional advisers it was only just sufficient. He referred to the welfare services which the Ministry continued to run and said 52% of all school-children now received school meals as against 4% before the war. There was an imperative need for the fairest possible sharing of foodstuffs. He cited a tribute to the condition of British children given last month by Professor Henri Bonnet, Director of the French Red Cross. Professor Bonnet said that in ten years England would have a generation

of young men and women superior to those of any other European country. The excellent physical condition of these children was due to their feeding. Their diet was perfectly balanced. Mr. Strachey observed that research work had gone on for over a year in Manchuria and Malaya on the production of edible oil from rubber seeds. It would be most valuable if this could be developed. From the East African plantations of ground-nuts there would be a commercial product in the spring or early summer of 1949. He believed the fall in the price of basic foodstuffs would continue after the harvest.

Replying to the subsequent debate, Dr. SUMMERSKILL said the people of the United Kingdom consumed 50% more milk than before the war, and the demand continued. In reply to a call for jam to be de-rationed she said this would make great demands for sugar and therefore the Ministry had to refuse. The Ministry was considering how it could dispose of the glut of plums and would probably make an announcement soon.

Physicians Approved by Bishops

The Joint Committee of the House of Lords and of the House of Commons appointed to consider all Consolidation Bills in the present session recently heard evidence given by Sir Cecil Carr, counsel to the Speaker, on the Statute Law Revision Bill. The Bill proposes, among many other repeals and revisions, the repeal of an Act of Henry VIII which states that physicians and surgeons are not to practise in London unless they are examined and approved by the Bishop of London or the Dean of St. Paul's, and not elsewhere unless they are approved by the bishop or the vicar-general of the diocese. It was in 1310 that a Continental Council gave the bishops authority over medical practice, but this control was subsequently found inadequate and the Act of Henry VIII was passed to deal with this situation. It was designed to restrict unqualified practice, but at the present time it would prohibit all qualified practitioners from practice in the absence of clerical approval, which none of them has obtained. The Act is obsolete, and all the authorities concerned, the Royal Colleges, the General Medical Council, the Bishop of London, the Dean of St. Paul's, the Ministry of Health, the Privy Council, and the Church Assembly Legal Board have been consulted and agree that it should be repealed.

Under the same Bill the repeal is proposed of another Act which concerns physicians practising in London, and which directs that certain offenders may be committed by the President of the College of Physicians "to be duly kept by jailors of any prison in London except the Tower." Another Act the repeal of which is recommended is the Lying-in Hospitals Act of 1773. Sections 10 and 11 of this Act state that owners or masters of hospitals "must take pregnant women before admission to be examined before a magistrate as to whether they are married or single."

Tuberculous School-teachers

On July 1 MR. ANTHONY GREENWOOD asked whether Mr. Tomlinson had reminded education authorities of the standing instructions issued by the Ministry of Health and his department that a teacher found to be suffering from active tuberculosis should be suspended from teaching. Mr. Greenwood further asked the Minister whether he had considered the desirability of making it compulsory for all teachers to have a regular medical overhaul in order to ensure that they were not carriers of tuberculosis.

MR. TOMLINSON said a memorandum had been issued reminding education authorities of the action to be taken when a teacher was found to be suffering from active tubercu'osis. The memorandum did not require teachers to be medically examined at regular intervals after their entry into teaching service.

Cracked Crockery.—Mr. STRACHEY said on July 5 that infection could be spread by any crockery which had not been properly cleaned after use, but that his medical advisers took the view that cracks did not materially enhance the danger. It was of the utmost importance that caterers should protect their customers by thorough cleansing and, where possible, sterilization.

Medresco Hearing-aid.—Mr. BEVAN said on July 8 that supplies of the magnetic type of Medresco hearing-aid were sent to four hospitals in England and Wales in time for them to begin operating the scheme on July 5. Supplies of the crystal type should begin to be available at the end of this month. The number of distribution centres would be increased to about 25 as soon as possible.

Cars for Midwives.—Mr. ODEY inquired on July 1 what steps had been taken to provide midwives, nurses, and health visitors in rural districts with motor transport when the new Health Service came into operation. Mr. BEVAN said supply was still difficult, but any chances of improvement were being explored with the motor industry.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part II (Principles and Practice of Physic, Pathology and Pharmacology):* P. H. Abbott, P. Allebone, N. Allsup, V. E. Amassian, J. C. Barker, J. Bean, E. M. Bennett, D. G. Bonham, Mrs. C. B. P. Bosanquet, R. M. Bowes, I. W. Broomhead, Mrs. K. H. Cohen, D. S. Craig, E. J. Dowling, J. V. Earle, W. J. D. Eberlie, Mrs. B. M. Eley, C. P. E. Elliott-Binns, P. Fehrsen, D. V. G. Feltham, J. E. Forster, P. M. Glasspole, I. W. de G. Gregory, N. R. Greville, I. Henderson, C. Q. Henriques, A. R. H. Hicks, F. N. Hicks, P. J. Higgins, A. Hill, J. L. Hine, M. Honey, M. H. Jerwood, D. G. Julian, E. A. Kauffmann, N. Kennedy, C. C. Kenred Smith, W. M. Keynes, H. G. L. Lloyd-Thomas, J. A. MacDougall, R. B. McGrigor, J. Mander, H. Middleton, P. F. D. Naylor, G. W. Page, C. M. B. Pare, I. C. Peebles, H. Piggott, S. Powell, Mrs. H. R. Roxburgh, J. E. S. Scott, R. T. Sears, L. Sefton, J. G. H. Shaw, J. M. L. Shearer, E. F. Soothill, W. F. W. Southwood, B. J. Spedding, R. A. Stanger, G. Stanley Smith, D. I. Storey, D. B. Sugden, C. H. Talbot, R. G. O. Tayler, C. D. Thompson, K. R. Wallace, W. R. Walsh, D. B. J. Wardle, J. Wedgwood, N. P. L. Wildy, H. I. Williams, R. D. Williams, J. M. Winn, A. R. H. Worssam.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—*†D. L. Fox, * B. L. Williams, Beryl G. R. Attwood, H. de C. Baker, F. B. Beswick, Joan Bolton, A. Braddock, A. B. Bradshaw, M. A. Brennan, Dorothy E. N. Briggs, R. W. Buckley, F. Connor, Nancy M. Cosslett, J. A. L. Derlien, M. Fasnacht, Constance M. Horrocks, J. D. Hunt, B. J. Kendrick, Jean Kershaw, Alexandra J. Kliman, Freda W. Lunt, Helen E. Mair, Winifred J. Millar, S. Panikkar, K. M. Pearce, Dorothy Pearson, S. D. Pratt, Patricia Rhodes, K. Robinson, Jean M. Sheldon, L. Smith, P. J. D. Snow, G. A. Steele, R. M. Taylor, W. L. Tonge, K. Tuxford, D. L. Watson, H. Weiss, J. L. Wilkinson. *Part I (Forensic Medicine and Hygiene and Preventive Medicine):* Mary A. Adlington, E. A. Allcock, Mary P. Armstrong, R. M. Ashton, Anne R. Barlow, Jessie M. Beard, T. B. Benson, K. Bloor, Margaret Bolland, F. Bottomley, W. Brabbin, Jean M. Breakell, N. C. Brown, K. D. Buckley, P. M. L. Burne, F. R. Calvert, Betty Carruthers, R. B. Charnock, C. Cohen, M. Cohen, P. Cuff, R. D. Currie, S. Dobson, Audrey E. Draycott, P. D. Drinkwater, J. B. Eagles, P. A. Ellis, G. Fildes, J. E. Glover, G. L. Glynne, Edith H. Grundy, R. B. Heigh, Jean M. Halliwell, G. Hudson, G. M. Ingall, A. G. Jackson, J. Jackson, G. Jessup, B. J. Kendrick, J. H. Latham, Kathleen M. Lord, Jean A. Lovatt, I. Macpherson, Lavinia M. Mallott, W. J. Metcalfe, J. M. Midgley, Marguerite Midgley, A. Noar, F. W. Oliver, Cristine M. Parish, Marjorie E. Petch, N. E. Quin, R. E. Raworth, Margaret E. Reynolds, Marjorie Rivers, M. Sandler, Audrey Seddon, Jeanette S. Shankland, D. P. Shepherd, I. Sieff, Rosaleen E. Singer, V. H. Smith, R. V. Sykes, Audrey J. Telford, T. A. J. Thorp, Margaret R. Thoseby, Barbara J. Walker, Kathleen R. Walker, Margaret D. Walsh, T. H. Whitaker, A. Wilkinson, Olive C. Wilks.

D.P.H.—D. G. Crawshaw, J. N. Dobson, A. Macfarlane, Mary P. McGlade, Marjorie L. Mackinnon, U. K. Menon, Joan E. Nuttall, T. O'Grady, J. Reed.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*Part I:* H. F. Jarvie, A. N. Jennings, J. D. F. Thornton.

* With second-class honours. † Distinction in forensic medicine.

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

FINAL M.B., CH.B.—*Part I:* H. B. Brown, Nora E. Brown, D. Burrell, A. C. Ellis, B. F. Matthews (with distinction in pharmacology), R. Reisler, M. S. Sampath, Mary L. Snowden, Rachel B. Taylor, Joyce W. Wallis, Joyce P. Watson, Eleanor J. Wilson. *Part II:* Roxie Glossop.

D.P.H.—G. Higgins, G. W. Knight, J. Lyons.

UNIVERSITY OF SHEFFIELD

The following appointments were made at a meeting of the University Council on July 9: *Lecturer in Anatomy,* T. Summerfield King, M.B., Ch.B. *Demonstrators in Anatomy,* M. J. Twohig, M.B., B.Ch., and S. M. Patel, M.B., Ch.B. *Research Assistant in Medicine,* Mrs. Joan Laird, M.B., Ch.B. *Research Assistant in Child Health,* J. Lorber, M.B., B.Chir., M.R.C.P. *Part-time Senior Lecturer in charge of newly created Department of Forensic Medicine,* Gilbert Forbes, M.D.Glas., F.R.C.S.Ed., F.R.F.P.S.

CONJOINT BOARD IN IRELAND

The following candidates have received the diplomas of L.R.C.P. and S.I.: A. M. M. Abernethy, M. Casey, R. E. ff. Devitt, Elizabeth M. D. Doherty, Carmel P. Dooley, P. S. Finegold, H. Hayes, J. F. Hickey, D. Jackson, S. J. Lundie, J. C. Mabayoje, Margaret V. M. Mathews, A. J. Matlin, D. H. Merrin, Mary T. Mitchell, Mary C. MacCabe, E. J. McCann, T. J. McCormack, Mary M. Navin, J. P. O'Sullivan, B. H. Willcock.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

The Council of the College announces the award of a Kirk Duncanson Fellowship for Medical Research to Robert Macfie Marquis, M.B.E., M.B., Ch.B., who will investigate congenital malformations of the heart. The value of the Fellowship is £750 and it is tenable for one year.

Medical News

Princess Margaret

At the annual general meeting of Dr. Barnardo's Homes held on July 14 the chairman announced that H.R.H. The Princess Margaret has graciously consented to become President of the Homes.

Professor Alan Moncrieff

Professor Alan Moncrieff, M.D., F.R.C.P., Director of the Institute of Child Health at the Hospital for Sick Children, Great Ormond Street, London, and Nuffield Professor of Child Health in the University of London, has been elected an Honorary Fellow of the American Academy of Pediatrics.

Extra Year for Aberdeen Medical Students

The Aberdeen University Court has decided that medical students entering the university next October must do an extra year in the degree course, making six years in all. This will give them a better grounding in the basic scientific subjects.

B.C.G. Vaccine in India

The Government of India is tackling the problem of tuberculosis with the help of the World Health Organization, which has sent out a team under Dr. Gellner to set up a laboratory in Madras for the production of B.C.G. vaccine. The Indian Government has also asked the United Nations International Children's Emergency Fund for financial help, and hopes to receive a part of the 2,000,000 dollars already allotted to Asiatic countries.

London County Medical Society

At a general meeting of the Medical Society of the L.C.C. Service held on July 7 it was decided to change the name of the society to the "London County Medical Society." It is intended that the society shall continue to hold monthly meetings, most of which will be clinical, and membership will in future be open to any medical practitioner who wishes to join. Further particulars may be obtained from the secretary, Mr. I. Matheson, F.R.C.S., St. Giles' Hospital, London, S.E.5.

Cambridge University Health Service

A health service, at first available only to first-year students, will start at Cambridge University this Michaelmas term. The service is voluntary and free of charge and will include a medical examination and an *x*-ray examination of the chest. Second- and third-year students will also be given an opportunity of having their chests *x*-rayed.

Wills

Dr. Mary Edith Martin, formerly visiting physician to the Lady Chichester Hospital, Hove, left £11,442; Dr. John McEwen Dalziel, late of the West African Medical Service, £6,384; Mr. Dudley d'Auvergne Wright, formerly consulting surgeon, London Homoeopathic Hospital £2,519; and Dr. Charles Christopher Heywood, who was consulting physician to Manchester Children's Hospital, £28,415.

COMING EVENTS

Summer School in Switzerland

The British Social Hygiene Council will hold a summer school on "The International and Cultural Relations of Social Biology" at the University, Lausanne, Switzerland, from Aug. 18 to Sept. 1. The first week will be spent in serious study, with two morning and one evening lecture sessions each day, except Sunday, while the second week will be free for visits, excursions, and personal recreation. The course is intended for students of biology, teachers, social workers, men and women in administrative positions, and all who are interested in problems of human welfare and culture. The estimated cost, including travel, hotel accommodation, and tuition, will be about £35. Those interested should apply early to the Secretary, British Social Hygiene Council (Dept. M.1), Tavistock House North, Tavistock Square, London, W.C.1.

Remedial Gymnastics

A course of lectures and demonstrations on the use of remedial exercises will be held on August 18–20 during the Annual Conference of the Association of Remedial Gymnasts. The course will be at Pinderfields Emergency Hospital, Wakefield, Yorkshire. The fee for non-members of the association will be 15s. Further information may be obtained from Mr. A. H. Hopker, at the Pinderfields Hospital.

SOCIETIES AND LECTURES

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, July 27, 3.30 p.m. "*Adrenaline and Allied Substances*," by Professor J. H. Gaddum.

Wednesday

CHARING CROSS HOSPITAL, London, W.C.—July 28, 5 p.m. "*Points from the Swedish Paediatric Congress, 1948*," by Dr. Doyne Bell. The lecture is open to graduate and undergraduate members of the medical profession and will be given in the clinical lecture theatre.

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330, Gray's Inn Road, London, W.C., July 28, 4.30 p.m. "*Organic Nervous Affections of the Larynx. Laryngeal Paralysis. Treatment—Educational and Operative*," by Mr. V. E. Negus.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—July 28, 5 p.m. "*Acute Infections of the Face and Neck of Dental Origin: A Consideration of Surgical Pathology and Management of the Patient*." Charles Tomes Lecture by Dr. M. W. Carr (Director of Oral Surgery, Metropolitan Hospital, New York).

Thursday

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—July 29, 5 p.m. "*Amoebic Liver Abscess*." Hunterian Lecture by Professor Shafik Shalaby (Professor of Surgery, Fouad University, Cairo).

Friday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, July 30, 3.30 p.m. "*Segmental Anatomy of the Lungs, with Special References to its Surgical Application*," by Mr. R. C. Brock.

APPOINTMENTS

J. D. McLaggan, M.B., Ch.B., F.R.C.S., has been appointed Aurist, and J. G. Milner, F.R.C.S., has been appointed Surgeon-Oculist, to Queen Mary.

Alexander Stewart Henderson, M.B., Ch.B., has been appointed medical officer of the Glasgow University student health scheme.

DOHERTY, C. J., M.B., B.Ch., Senior Resident Physician, Jordan Memorial Sanatorium, The Glades, New Brunswick, Canada.

GILROY, JOHN M., M.B., B.Ch., D.P.M., Honorary Assistant Physician in Psychological Medicine, Prince of Wales's Hospital, Plymouth.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.—*Receiving Room Physician*, W. E. MacLean, M.D., M.R.C.P., D.C.H. *Assistant Pathologist (Virus)*, J. A. Dudgeon, M.D. *Resident Anaesthetic Registrar*, Pamela Westhead, M.B., Ch.B. *Orthodontic Registrar*, D. P. Walther, M.R.C.S., L.R.C.P., L.D.S. *House-physicians*, H. R. Jolly, M.B., B.Ch., H. N. B. Wettenhall, M.D., M.R.A.C.P., M.R.C.P. *House-surgeons*, Pauline M. Cole, M.B., B.S., W. Gordon, M.B., B.Ch.

ROYAL ISLE OF WIGHT COUNTY HOSPITAL, RYDE.—Portsmouth and Isle of Wight Area Pathological Service: *Morbid Histologist*, R. D. Clay, M.B., B.S.; *Assistant Pathologist*, P. D. Swinstead, M.B., B.S.; *Biochemist*, J. Harkness, B.Sc., M.B., Ch.B.

WARWICK, NINA S. S. SEAFORD, M.B., Ch.B., D.O.M.S., Honorary Ophthalmic Surgeon, Macclesfield General Infirmary, and Honorary Consulting Ophthalmic Surgeon, Parkside Mental Hospital, Macclesfield.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Bateman.—On July 12, 1948, at Forbes Fraser Hospital, Bath, to Gwen, wife of Mr. Bryan Daunt Bateman, O.B.E., F.R.C.S., a sister (Mary Anne) for Elaine and Wendy.

Hemphill.—On July 9, 1948, in Belfast, to Patricia (née Lawrence), wife of Dr. Peter Hemphill, Ardglass, Co. Down, a brother for Jennifer.

Maclure.—On June 21, 1948, to Dr. Agnes C. Maclure (née Macfarlane), wife of Dr. W. Alastair Maclure, M.R.C.P., of Eastgate, Lincoln, a son—Roderick Macfarlane.

DEATHS

Ainsworth.—On July 13, 1948, at Eton Villa, Ilfracombe, Douglas Robert Ainsworth, M.R.C.S., L.R.C.P.

Fleming.—On July 7, 1948, at Hampstead, Eric Gordon Fleming, M.D., aged 55.

Fryer.—On July 14, 1948, at Gaverne Cottage, Cuckoo Hill Drive, Pinner, Middlesex, James Fryer, M.B., Ch.B. Glas., D.P.H.

Goodhart.—On July 16, 1948, Gordon Wilkinson Goodhart, M.D., F.R.C.P., at 40, West Cromwell Road, London, S.W., younger son of the late Sir James Goodhart, Bt., M.D., F.R.C.P.

Griffiths.—On July 12, 1948, at Lynton, Whitehall, Meopham, Kent, Samuel Albert Ernest Griffiths, M.R.C.S., L.R.C.P., aged 80.

Hickman.—On July 8, 1948, at Castle House, Flax Bourton, Somerset, Henry Richard Belcher Hickman, M.B., B.Ch., aged 82.

Loughnane.—On July 14, 1948, at Lindo Wing, St. Mary's Hospital, Paddington, W., Farquhar McGillivray Loughnane, F.R.C.S., of 29, Devonshire Place, London, W.

Low.—On July 10, 1948, at 1, Station Road, Tring, Herts, Alfred Lees Low, M.B., C.M.Ed.

Marshall.—On July 10, 1948, at Sunnybrae, Walkerburn, Peeblesshire, Legh Richmond Herbert Peter Marshall, O.B.E., M.D.Ed.

McCay.—On July 13, 1948, at Downside, Woking, Surrey, David McCay, M.D., M.R.C.P., Lieutenant-Colonel, I.M.S., retired, aged 75

Robb.—On July 12, 1948, at Quarrylands, Dunsford Hill, Exeter, William Austin Robb, M.D., M.R.C.P., aged 55.

Rose.—On July 7, 1948, John Rose, M.A., M.B., Ch.B., D.P.H., of Greylingstad, Transvaal, S. Africa.

No. 27

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 3.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948					1947 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	42	5	15	3	—	64	10	20	2	2
Deaths		1	—				—	2		
Diphtheria	141	16	40	11	7	188	20	37	15	15
Deaths	2	1	—	—	—	2	1	1	—	—
Dysentery	69	9	39	—	—	57	3	26	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	4	—	1	—	—
Deaths		—					—			
Erysipelas			33	6	1			36	7	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				12					54	
Deaths	27	1	11	2	1	52	4	14	4	1
Measles*	8,987	680	120	132	65	10,269	556	68	186	9
Deaths†			—	—	1	5	—	2	1	—
Ophthalmia neonatorum	57	1	5	—	—	61	4	11	1	—
Deaths										
Paratyphoid fever	6	—	1 (B)	—	—	8	1	2 (A) 1 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	359	9	4	5	—	353	26	5	1	1
Deaths (from influenza)‡	6	1	—	—	—	5	—	—	—	—
Pneumonia, primary			134	25				159	25	
Deaths	134	22		4	8		22		4	4
Polio-encephalitis, acute	2	—				9	1			
Deaths							1			
Poliomyelitis, acute	36	3	1	2	—	79	9	4	4	—
Deaths§	3	—					1			
Puerperal fever		2	9		—		2	10		—
Deaths										
Puerperal pyrexia‖	120	13	6	—	1	144	9	10	1	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,532	87	353	54	23	966	87	126	47	29
Deaths†			—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	3	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	6	—	—	3	—	15	1	2	—	17
Deaths	—	—	—	—	—	—	—	—	—	1
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,907	223	18	69	16	2,240	287	44	104	9
Deaths	6	1	1	3	—	11	1	1	—	1
Deaths (0–1 year)	243	31	41	29	10	333	44	56	29	12
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	3,867	607	522	182	118	3,694	560	544	184	103
Annual death rate (per 1,000 persons living)			10·5	11·4				11·3	11·6	
Live births	8,006	1275	971	485	253	9,421	1558	1109	508	306
Annual rate per 1,000 persons living			19·6	30·3				22·3	32·0	
Stillbirths	194	17	44			238	31	30		
Rate per 1,000 total births (including stillborn)			43					26		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Typhus in County Tyrone

Two cases of typhus fever have been notified in County Tyrone. On July 19 the Northern Ireland Ministry of Health stated that the two patients were children from the Fintona district and had been playing with the children of a gipsy tinker colony. Steps are being taken to disinfest all gipsy and tinker encampments in the district.

Poliomyelitis

Reports from B.U.P. correspondents show that outbreaks of poliomyelitis are in progress in certain areas of the United States, while Europe on the whole is experiencing fewer cases than usual. The worst-affected area in the United States is North Carolina. More than 500 cases have been reported in the State so far. In Europe there are reports of increases in incidence from Stockholm and Berlin, but other cities report fewer cases than in previous years. Sweden reports 103 cases from Jan. 1 to June 15 this year, as compared with 49 cases in the same period of last year. In the second half of last year a total of 1,454 cases were reported in Sweden.

German and Allied health authorities in Berlin recorded 34 cases, 3 of them fatal, in April and May, compared with only one case over the same period last year. During the second half of 1947 a total of 339 cases were reported in Berlin with 12 deaths.

Fewer cases than in previous years are predicted for the whole of Belgium this year by Ministry of Health officials in Brussels. In 1945 there were 960 cases in Belgium, but this had dropped to 260 cases by last year. The pre-war average was between 80 and 100 cases each year. Switzerland reports a similar decline, from 1,793 cases in 1944 to 932 cases in 1946 and 755 cases in 1947. Only 41 cases had been reported up to the middle of May, 1948, as compared with 56 in the same period last year. Holland's worst year was 1943, when 1,931 cases were reported. The number had dropped to 693 by last year, although this is still high when compared with the pre-war average of some 300 cases a year.

Discussion of Table

In *England and Wales* the only variations of any size in the returns of infectious diseases were decreases in measles 1,584 and scarlet fever 117 and an increase of 104 in the incidence of whooping-cough.

The largest decreases in the notifications of measles were: London 200, Durham 185, Warwickshire 168, Flint 141, Staffordshire 131, Lancashire 131, Cheshire 116, and Middlesex 111; the largest increases were: Yorkshire West Riding 53, Sussex 47, and Caernarvonshire 47. The only variation of any size in the local returns of scarlet fever was a decrease of 50 in Lancashire. The largest increase in the incidence of whooping-cough was 36 in Norfolk. An increase of 9 in the notifications of diphtheria in Lancashire was the chief feature of the returns of this disease. An outbreak of dysentery affecting 11 persons was notified from Sussex, Chailey R.D. The other large centres of infection were: Yorkshire West Riding 11, London 9, Lancashire 8, and Norfolk 8.

The notifications of acute poliomyelitis increased by 9. This is the third consecutive week showing a small increase. There seems a possibility that the course of this disease will be similar to that of cerebrospinal fever in the early war years and that we may expect a high seasonal rise in the autumn. During the week multiple cases were notified in Bedfordshire, Bedford M.B. 4; Leicestershire, Leicester C.B. 4; Sussex, Arundel M.B. 2; Middlesex, Enfield U.D. 2; Staffordshire, Walsall C.B. 2; Warwickshire, Birmingham C.B. 2; Yorkshire East Riding, Kingston-upon-Hull 2. Other counties with multiple cases were: London 3, Derbyshire 2, and Lancashire 2.

In *Scotland* a decline was recorded in the incidence of most infectious diseases. There were falls in the incidence of measles 45, scarlet fever 41, and whooping-cough 20. The notifications of dysentery in Edinburgh rose from 4 to 10. In the eastern area there was a rise of 18 in the notifications of scarlet fever.

In *Eire* decreases were recorded in the totals for diarrhoea and enteritis 34, whooping-cough 17, and measles 12, while increases were reported in the incidence of scarlet fever 14 and diphtheria 5. A further 27 cases of measles were notified from the outbreak in Galway, Loughrea R.D.

In *Northern Ireland* the largest variations in the returns were a decrease of 13 for scarlet fever and an increase of 6 for diphtheria.

Week Ending July 10

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,658, whooping-cough 3,075, diphtheria 150, measles 8,837, acute pneumonia 340, cerebrospinal fever 24, acute poliomyelitis 23, dysentery 56, paratyphoid 6, and typhoid 5.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Simple Lacrimation in the Elderly

Q.—*What is the cause and what is the treatment of continuing simple lacrimation in elderly men and women? In these cases there is no obvious local abnormality.*

A.—The commonest cause of continuing simple lacrimation in elderly people is a slight ectropion disturbing the normal apposition of the punctum to the globe. Many cases respond well to the instillation of 0.25% zinc sulphate solution two or three times a day. The drops can be continued indefinitely, but most patients do not require any prolonged treatment. The first few applications may produce smarting. When using zinc sulphate it is advisable to avoid instilling drops just before going to bed, because when the lids are closed this solution tends to glue them together.

Ambulation after Operation for Hernia

Q.—*Has the practice of getting the patient up the day after operation been adopted for cases of direct and of indirect hernia? If so, what are the early and late results?*

A.—Early post-operative ambulation is used after surgical treatment of herniae to a limited extent in this country, but to a considerable extent in America. The choice of case for early ambulation requires judgment and common sense. The young adult with good abdominal musculature and a congenital type of indirect sac can usually get up safely the day after operation. The more flabby the abdominal muscles the more complicated the method of repair (and therefore more particularly with direct than with indirect herniae), and the greater likelihood is there of immediate post-operative breakdown in cases permitted early ambulation. If the cases are carefully selected both the immediate and the long-term results are very satisfactory.

"Promanide" in Leprosy

Q.—*Can you give details of the treatment of leprosy with the new drug "promanide" ("promin")?*

A.—Repeated fortnightly courses of promanide, 0.3 g. daily intravenously, separated by intervals of a week's rest, may be given for a year or two. At the same time ferrous sulphate, 0.6 g., and thiamin, 5 mg., daily by mouth are prescribed. The diet should be adequate and well balanced. Blood counts should be made at frequent intervals, and a careful general supervision of the patient should be maintained.

Besnier's Prurigo

Q.—*Can you suggest treatment for a healthy man, aged 38, suffering from congenital Besnier's prurigo? X-ray therapy and various lotions and creams have been tried without success.*

A.—There may be some factors of specific sensitization to be investigated and eliminated, but the problem is essentially a psychological one and needs careful investigation and treatment along these lines, supported by mild simple sedative-tonic measures internally and tar pastes locally. Most commonly the trouble has its roots in the parental relationships and home environment.

Freckles and Nasal Hair

Q.—(*a*) *What is the best treatment to abolish freckles? Has any active depigmenting substance been isolated from the old wives' cure, buttermilk?* (*b*) *Is there any method of controlling a recurrent irritating growth of hair from nostrils?*

A.—(*a*) Freckles should be left alone. There is no depigmenting substance in buttermilk.

(*b*) There is no way of controlling such growth. With difficulty the hair roots may be destroyed by electrolysis or diathermy.

Treatment of Polycythaemia

Q.—*What are the recent developments in the treatment of polycythaemia? Has treatment with radioactive phosphorus been started in this country?*

A.—Polycythaemia rubra vera has been treated satisfactorily with radio-phosphorus (P^{32}); the usual dose is 5–10 millicuries by intravenous injection, which may need to be repeated after three months. The remission induced has lasted for as long as two years; further doses are required when the erythrocyte count starts to rise. It is important that the patient should not take iron during this period. Other therapeutic methods used are irradiation of the whole skeleton and, more recently, injections of nitrogen mustard. The latter substance usually induces remission but seldom for longer than three months. P^{32} is not yet available in this country in sufficient quantities for this disease to be treated, but it has recently been said that it will become available within the next few months.

Under-arm Deodorants

Q.—*Large numbers of women regularly use commercial products for deodorizing and controlling perspiration under the arms. There seems no doubt about their efficiency.* (*a*) *What is their pharmacological action?* (*b*) *Is there any danger in their persistent* (*weekly*) *use?*

A.—The substances commonly used to lessen perspiration under the arms contain a dilute solution of aluminium acetate or aluminium chloride. These solutions precipitate protein and thus have an astringent action. They are mildly antiseptic. Thus they act by hardening the surface of the skin. There is no danger in their regular use, as aluminium compounds even when absorbed have remarkably little toxic action.

Pressure of Truss on Femoral Vessels

Q.—*How far is the sac of an oblique or direct inguinal hernia from the femoral vessels? Is there any likelihood or possibility of the pad of a truss occluding these vessels?*

A.—The neck of an indirect inguinal hernia has as its immediate postero-internal relation the deep epigastric artery. This arises approximately 1/2 in. (1.25 cm.) above the inguinal ligament, below which the external iliac artery becomes the femoral artery. The distal portion of the external iliac artery and the proximal portion of the femoral artery are well protected against pressure by the fibrous tissue of the outer part of the conjoined tendon, the external oblique aponeurosis, and the inguinal ligament. A truss with pressure sufficient to occlude the femoral vessels (and the maximum point of pressure of the pad should be well internal to these vessels) would be unwearable.

Round-worms

Q.—*Children are constantly being licked on the mouth by puppies, and even have them in bed. All puppies have round-worms, yet round-worms are comparatively rare in practice. Is this because the canine variety is entirely different from Ascaris lumbricoides and infection cannot occur?*

A.—*Ascaris lumbricoides*, the "round-worm of man," does not occur in the dog. *Toxocara canis*, "the dog ascarid," is a common parasite of the dog but has only once been recorded in the human host.

Ménière's Syndrome

Q.—*What is the current treatment of Ménière's syndrome? What place, if any, does tetra-ethyl-ammonium chloride hold in the diagnosis and treatment of this condition?*

A.—There are several recognized methods of treating Ménière's syndrome. Probably the commonest is to institute a salt-free diet. The fluid intake may be drastically reduced in some methods of treatment. Some claim good results from histamine injections, others from the elimination of septic foci. Some, again, administer small doses of potassium chloride. For symptomatic treatment during attacks phenobarbitone is most used, but hyoscine, in the form of one of the usual sea-sickness remedies, is also very effective. When conservative measures fail the affected labyrinth may be destroyed by injection of alcohol into the horizontal semicircular canal or through

the oval window, or the vestibular nerve may be cut. Tetraethyl-ammonium chloride is used to reduce high blood pressure but, so far as the writer knows, has no place in the diagnosis and treatment of Ménière's syndrome.

Sprue and Malignant Disease

Q.—*Does sprue predispose to malignant disease? If a patient with sprue developed a carcinoma of the bowel laparotomy could not be undertaken because of the weakness and emaciation, and death might be wrongly attributed to the sprue.*

A.—There is no reliable evidence that sprue predisposes to malignant disease. With adequate treatment most cases of sprue respond rapidly and satisfactorily enough to permit exploratory operation where indicated.

Gonorrhoea, Syphilis, and Penicillin

Q.—*A patient who was successfully treated with penicillin for gonorrhoea four months ago has developed a primary sore in which Spirochaeta pallida has been found. The Wassermann reaction is negative. (a) What is the prognosis in these cases? Does the fact that penicillin has been given make cure more difficult? (b) The patient had unprotected intercourse with his wife about a month before the first sign of the sore, but not after that. Is there any danger that she might have been infected on this occasion, which was presumably during the incubation period?*

A.—(*a*) The prognosis is good provided adequate treatment is administered without delay. There is no reason to suppose that the syphilis will be more difficult to cure because the patient was treated with penicillin for gonorrhoea. (*b*) There is a risk that the patient may have infected his wife, but it is small; it would therefore be wise to keep her under observation for at least three months, with periodical clinical and serological examinations.

Retardation of Growth

Q.—(*a*) *Has an anti-growth hormone definitely been isolated?* (*b*) *What is the substance that might be called the opposite number of the anterior pituitary growth hormone?* (*c*) *Can such substance be utilized to prevent the growth of cells in certain organs of the human body to the exclusion of cells in other organs of the body?*

A.—(*a*) No. (*b*) There is no such substance, but experimentally the giving of certain hormones, such as oestrogens, will inhibit initial secretion of the pituitary gonadotrophic hormone and subsequently all other hormones, including the growth hormone. Thus Zondek produced dwarfism in mice so treated, together with hypogonadism, and the pituitary gland showed loss of the granules of both the eosinophil and the basophil cells, and sometimes a large chromophobe adenoma was also produced. Clinically it is difficult to stop somatic growth or to inhibit the development of acromegaly by such methods, but relative success in the latter is sometimes obtained. (*c*) No.

Keeping Qualities of Aspirin

Q.—*Does aspirin in a mixture deteriorate appreciably? Is it best to prescribe aspirin in tablet form?*

A.—Aspirin is a somewhat unstable chemical, hydrolysing in the presence of water into free salicylic and acetic acids. In mixture form it decomposes fairly rapidly, and even in powder and tablet form it cannot be relied upon to keep for prolonged periods, particularly in a moist atmosphere. The odour of acetic acid on opening the container is an indication of decomposition, and if this odour is strong one may suspect very appreciable deterioration.

Acute Cystitis

Q.—*What is the prognosis in a man of 70 with some prostatic enlargement who had an acute cystitis twelve years ago and a recurrence two months ago? The urine was freed from the infecting organisms—Bact. coli and Str. faecalis—after a course of sulphadiazine. Can treatment with sulphonamides be continued with impunity, and are further relapses likely?*

A.—It is very difficult to get rid of a urinary infection in the presence of residual urine, and in this case there is likely to be residual urine. The best method of treatment is either by means of calcium mandelate or by the use of the sulphonamides. As a sterile urine was temporarily obtained after taking sulphadiazine there is no reason why this should not be repeated. Sulphamezathine is probably even less toxic than sulphadiazine, but if either of these preparations is taken in moderate doses and with plenty of fluids for only a week no harm will be done. Occasional relapses are likely, but in time a higher resistance to the infecting organisms may be developed. Provided the residual urine does not increase, the outlook is satisfactory.

Nerve Deafness and Syphilis

Q.—*What is the best treatment for a patient aged 65 with marked arteriosclerosis of the limbs who is now rapidly developing nerve deafness? He has positive Wassermann and Kahn reactions and has had a full course of penicillin without effect, but no other antispecific treatment. The old specific trouble has been quiescent for years apparently, and the positive Wassermann reaction was only accidentally discovered. Would tryparsamide and bismuth arrest the nerve deafness?*

A.—It would be wise to obtain the opinion of a neurologist on whether the nerve deafness is due to syphilis, which seems at least problematical. The full effects of penicillin in certain forms of syphilis are often not apparent for some months. Assuming the patient has had at least five mega units, further antispecific treatment is not indicated until several months have elapsed. If the condition has not improved by then, injections of oil-soluble bismuth, given twice weekly, might be worth trying. Tryparsamide should not be employed. In view of the condition and age of the patient the prognosis is far from good.

NOTES AND COMMENTS

Loss of Weight after Hysterectomy.—Dr. A. RUSSELL (Edinburgh) writes: I trust you will permit a suggestion concerning the answer to the query describing loss of weight after hysterectomy ("Any Questions?" July 10, p. 117). The slowly progressive loss of weight with wasting apparently confined to face, upper limbs, and trunk—the lower limbs remaining "quite muscular"—might well suggest a progressive lipodystrophy. You will agree that this condition may arise in adult life, principally in females, and may be associated with atrophic lesions of the hypophysis, ovarian lesions, etc., so that the pathology implied in the question may not be unrelated. The concentration of the wasting in the face, together with the unimpaired general condition, would appear to give added support to the diagnosis suggested.

Corrections

In our report of a meeting of the combined Sections of Child Health and Radiology on Friday, July 2 (*Journal*, July 17, p. 162), Professor Wilfrid Gaisford (Manchester) was reported as saying "not all malignant cases were curable." This should have read "not all cases were fatal, which is quite commonly assumed." The reference to a raised basal metabolic rate in cases of medulloblastoma was also incorrect and should have read: "Topper had found that in all intracranial tumours, whether benign or malignant, the basal metabolic rate was lowered, whereas in all malignant tumours in other parts of the body it was raised." The phrase "staggering was a common first symptom" should have been deleted, and Wilms's tumours are, of course, radiosensitive. "The inguinal glands were enlarged . . ." should have read "were *not* enlarged."

We regret that in the letter from Sir Frederick Menzies (July 17, p. 171) an error occurred in the printing of the first line of the second paragraph. It should read: "Not one of these men ever received any public recognition of their great services to London. . . ."

There was a misprint in the report of the visit of the Section of Pathology to the Strangeways Research Laboratory at Cambridge (July 17, p. 160). Reference was made to an important demonstration of the histological assessment of the radiation treatment of cancer by "Dr. A. Glausmann and Dr. F. G. Spears." This should have read "Dr. A. Glucksmann."

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